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CONTRIBUTORS TO VOL. X.

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INDEX, VOL. X.

THE

CINCINNATI MEDICAL NEWS.

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Original Contributions.

A Brief Report of Cases of Sympathetic Ophthalmia and Sympathetic Irritation.

By A. ROSEBRUGH, M. D., Surgeon to Toronto Eye Infirmary.

Read before the Medical Section of the Canadian Institute, May 16, 1873, Reprinted from the Canadian Lancet for June.

About two years ago I had the privilege of reading a paper before this Society on Sympathetic Ophthalmia, in which I endeavored to point out:

1st. That Sympathetic Ophthalmia is a peculiarly destructive form of inflammation of the eye, arising solely from irritation in the opposite eye, and that, as a rule, it runs its course unchecked, and the patient is left hopelessly blind.

2nd. That the most common cause of Sympathetic Ophthalmia, or Sympathic Irritation, is injury to the opposite eye, particularly wounds in the region of the ciliary body; and

3rd. That the only possible means of arresting the progress of the disease is the early removal of the injured eye; and that in all cases when the injured organ is enucleated before sympathetic inflammation is actually established, even although it may be already very much weakened from Sympathetic Irritation, the uninjured eye never becomes affected with Sympathetic Ophthalmia.

The following cases illustrate some of these points. They are arranged accordinng to the length of time that intervened between the date of injury and the appearance of sympathetic trouble in the uninjured eye. Eight are cases of Sympathetic Ophthalmia, and three are cases of Sympathetic Irritation.

I.—Sympathetic Ophthalmia.

Case. 1—*Total blindness in three weeks after injury of one eye from Sympathetic Ophthalmia.*

Peter John H., of Listowell, aged 16. Four years ago last March he was hooked by an ox, the horn rupturing the eye-ball, and a portion of the vitreous humor escaping. The wound healed, but remained irritable, and two weeks after the accident the uninjured eye became sympathetically affected, and one week later he was perfectly blind. I saw the case about two years after the accident, and found both eyes destroyed as organs of vision. He is now in the Institution for the Blind at Brantford.

Case 2.—*Total blindness in five weeks from wound in one eye.*

Mrs. A. W. B., of Little Scotland, county of Brant, had an injury in one eye in February last. Some boys were exploding a percussion cap, while she was looking on from a distance of six or eight feet. A piece struck the eye in the ciliary region. The sight of that eye soon became impaired, and the eye painful. In five weeks she complained that the uninjured eye felt "weak," and by the end of the sixth week she was blind in both eyes. I saw her three weeks later, and found a cicatrix in the sclerotic, just external to the margin of the cornea. The eye was irritable and the tension reduced. The pupil was closed and the perception of light reduced to a minimum. On examination of the uninjured eye, I found the pupil closed with plastic exudation, but the inflammation had subsided. The quantitative perception of light was good. I recommended the immediate removal of the injured eye, and subsequently an artificial pupil operation on the other eye; but as the patient had a great dread of chloroform, she declined operative interference.

Case 3.—*Total blindness from Sympathetic Ophthalmia six weeks after injury of right eye.*

Joseph H., aged 22, Delaware, Ont. The right eye was injured in September, 1870, from the recoil of a piece of spring wire. The steel caused a penetrating wound of the cornea and prolapse of the iris. The wound healed in about ten days, and the sight recovered completely.

In about two weeks after the accident he had an attack of what his physician called conjunctivitis, supposed to be caused by exposure to the dust of a threshing machine. This congestion of the conjunctiva was probably symptomatic of ciliary irritation, caused by dragging upon the ciliary processes on account of the prolapse of the iris. The eye recovered from this attack, but in about three weeks later the eye again became inflamed, the disease extending to the iris and closing the pupil. One week later, or six weeks after the injury to the left eye, sympathetic irido-choroiditis was set up in the left eye, which resulted in total blindness. He is also at the Institution for the Blind at Brantford.

CASE 4.—*Total blindness from Sympathetic Ophthalmia eight weeks after wound of right eye.*

Samuel McC., aged 36, Mt. Pleasant. Right eye wounded in June, 1871, from splinter of wood while chopping. The wound was in the sclerotic, just external to the cornea, and extending into the ciliary region. About three weeks after the accident he came to Toronto for advice. The surgeon whom he consulted did not recommend any interference, and he returned without anything being done for him. I saw the case in October, about four months afterwards, and found that the injured eye was quite destroyed, and that the pupil of the other eye was quite closed from plastic exudation. I then learned that the inflammation had set up in the then sound eye almost exactly six weeks from the date of injury of the other eye. The injured eye was enucleated, and an iridectomy performed upon the opposite eye. Vision was somewhat improved by the artificial pupil. He returned in February, 1872, for a second operation. Unfortunately suppurative inflammation followed the operation, and he is now hopelessly blind. I learned subseqently that at this particular time erysipelas and puerperal fever were unusually prevalent in Toronto and vicinity. The suppurative inflammation following the operation upon the iris may have arisen from the same predisposing atmospheric cause.

CASE 5.—*Blindness in one eye and Sympathetic irido-choroiditis in the other seven weeks after injury. Good result.*

R. S. H., of Consecon, while driving a nail, February

15, the nail broke and the end struck the left eye in the ciliary region. He was sent to me by his family physician four weeks after the accident. The eye was then filled with blood and quite useless; the sclerotic was ruptured in the ciliary region. He returned home with a note to his physician pointing out the danger to be apprehended, and recommending that both eyes be closely watched. He returned in three weeks, led by his brother. The injured eye was about the same as when I saw it last, with the exception that there was less hemorrhage and he could see the light from the ophthalmoscopic mirror brighter than before. On examining the right eye, however, I found the pupil irregular, and other symptoms of Sympathetic irido-choroiditis. The injured eye was enucleated the same day under chloroform. The right eye was placed under treatment and it commenced to improve immediately. In two weeks he returned to Consecon; the inflammation relieved, vision restored, and wearing an artificial eye.

CASE 6.—*Total blindness from Sympathetic Ophthalmia two months after wound of left eye.*

The following very brief memorandum is copied from my journal for 1871. I cannot now recall the case. Hamilton P., Toronto, aged 21. When six years of age the left eye was wounded with a scythe. The eye remained full size after the accident, but the sight was destroyed. Four weeks aftewards the sight of the right eye commenced to fail, and in about two months from the date of the accident he was quite blind.

CASE 7.—*Total blindness from Sympathetic Ophthalmia in nine months after wound of left eye.*

Hester L., aged 21, county of Hastings, gives the following account of her case:—At eight years of age, the left eye was wounded with a stick of wood. The "pupil" was cut. The accident occurred at Christmas time. The wound was healed in about a month, but that eye was quite blind. She went to school for eight months, when the right eye began to fail. At first she noticed that there was occasionally a blur over the letters in reading; this increased, and both eyes became quite painful; the sight continued to fail until the month of October, when

she found herself quite blind in both eyes. She has now been blind 13 years. Both eyes are atrophied.

CASE 8.—*Total blindness from Sympathetic Ophthalmia fifteen months after wound of right eye.*

George B., aged 18, Toronto, has been blind for four years. When about twelve years of age, he had a wound of the right eye with a piece of glass, which resulted in the loss of sight in that eye. The sight in the other eye began to fail in about a year after the accident. Six months after he applied for relief at the then Toronto Eye Dispensary, when he was found to be quite blind. His right eye was slightly atrophied (tension reduced) and tendor to the touch, the direct result of the wound eighteen months previously. The left eye was full and the tension normal, but the pupil was completely closed, and the iris adherent to the anterior capsule of the lens (posterior synechia) the result, undoubtedly of sympathetic irido-choroiditis. The right eye was enucleated, and subsequently an artificial pupil operation was performed on the left, but without avail. The eye subsequently atrophied. He is also in the Brantford Blind Institute.

II.—SYMPATHETIC IRRITATION.

CASE 9.—*Sympathetic Irritation three months after wound of opposite eye. Good result.*

Robert L., aged 45, Toronto. About March 15, 1869, the eye was wounded by a piece of iron rivet, in using a hammer and chisel. The wound extended from the cornea into the ciliary region. The sight was destroyed, and the eye kept tender until June 15, when he first came under observation. The wound had quite healed, but the eye was sensitive to the touch. The opposite eye to all appearance was healthy, but he complained of its being so weak, that he could neither read nor return to his work. In technical language, he had sympathetic irritation. A consultation with the family physician was suggested, but he was not seen again for two weeks, when the consultation was held, and the enucleation of the injured eye decided upon, to which he only gave a reluctant consent after the strongest representations were made to him by his clergyman and family physician. In

a week's time the eye was perfectly healed, and in less than two weeks he was at work again.

Case 10.—*Sympathetic Irritation from wound of the opposite eye twelve months previous. Good result.*

Daniel M., of Lindsay, aged 33. In March, 1870, while cutting hot iron with a chisel, a piece hit the eye and ruptured the sclerotic. His physician sent him to Toronto, and three sutures were introduced. The wound was healed in three weeks. He returned to his home and his business as a blacksmith. The sight in that eye was destroyed, and the eye was occasionally a little sore, but he kept at his work for 12 months, when he returned to Toronto, no longer able to continue his business on account of Sympathetic Irritation. The injured eye was enucleated, and in a week's time the other eye was quite strong again. A week later he left Toronto wearing an artificial eye.

Case 11.—*Sympathetic Irritation. Piece of steel in the eye eighteen years. Good result.*

A. R. H., Toronto. Right eye blinded 18 years from a piece of steel entering and remaining in the eye. No irritation in left eye until 12 weeks before he applied for relief. Left eye was then (Dec., 1869) so "weak" that he could neither read nor work. The injured eye was atrophied and a little tender. It was removed, 16th Dec. Four weeks afterwards his report is that his eye is all right. When last seen, 12 months ago, he was at work and wearing an artificial eye.

General Conclusions.—From these and other cases of sympathetic diseases of the eye that have come under my observation, I have been led to draw the following conclusions, which are in full accord with the conclusons of others, and which I take the liberty of expressing in language similar to that of Mr. Lawson in his admirable treatise on "Injuries of the Eye."

1st. That Sympathetic Ophthalmia is a peculiar inflammation of one eye, originating solely from an irritation in the other.

2nd. That the most frequent causes of Sympathetic Ophthalmia are penetrating wounds of the eye, and

especially those which involve the ciliary region; and foreign bodies within the eye.

3rd. That Sympathetic Ophthalmia usually takes the character of a malignant form of irido-choroiditis, with a tendency to a rapid effusion of lymph, capable of speedy organization.

4th. That the disease once started is very difficult to arrest; that it is recurrent in its nature, and that when once fully established it often runs its course unchecked, to the complete destruction of the eye as an organ of vision.

5th. That the removal of the injured eye affords the best chance of arresting the disease; and that, as seen in Case 5, if this operation is resorted to in its early stages, there is a good prospect of its doing so. Hence the importance of diagnosing in what case of injury Sympathetic Ophthalmia is likely to follow, and the necessity of at once removing such injured eyes which are prone to produce it, and especially if they are already lost for all visual purposes.

Before proceeding to a description of the operation of enucleation, with which I will bring this paper to a close, I would add that, in my opinion, every surgeon might be qualified to perform this operation. It is not nearly so formidable as generally supposed, and the hemorrhage is usually very slight. The wound is generally perfectly healed in six days, and an artificial eye may be worn in less than three weeks. The eyeball alone being removed, the conjunctiva and muscles form a cushion upon which the shell of the artificial eye rests, and which enables it to move in concert with the other eye.

The patient is placed on his back and brought under the influence of chloroform. The eyelids are widely separated by means of the spring (self-retained) speculum. The conjunctiva is seized near the cornea with a pair of fixation forceps; the raised portion is snipped with a pair of strabismus scissors; the points of the scissors are introduced through the wound, and the conjunctiva is dissected up for some distance on each side of the wound, and following the circumference of the cornea. This loosened portion of conjunctiva is detached close to the cornea by several snips of the scissors. A portion of conjunctiva on the opposite side of the cornea is seized, dissected from

the sclerotic, and detached from the cornea in the same manner. When this part of the operation is complete, there should be a circular incision through the conjunctiva close to and surrounding the cornea. This opening is sufficiently large for the passage of the bulb. The recti muscles are successively picked up with a strabismus hook, and divided with the scissors. It is an advantage to use two hooks, the one being introduced before the other is withdrawn. The optic nerve is usually severed with a pair of scissors, but I consider it an improvement to divide the nerve with a blunt-pointed bistory. The eye-ball is made to advance through the conjunctival opening, and seized with the thumb and finger; the blunt-pointed knife is introduced on the nasal side, far back into the orbit. The nerve can be readily felt, it being slightly on the stretch. It is divided, and as the eye is being brought forward, the oblique muscles are divided. As a rule, but little after-treatment is required. One fold of wet lint should be kept over the eyelids for a few days, and the bloody discharges from time to time is removed.

On Some Remedial Applications of Sulphate of Zinc.

By Z. COLLINS MCELROY, M. D., Zanesville, Ohio. Physician to the Home of the Friendless; Physician to the Muskingum County Infirmary; Fellow of the Zanesville Academy of Medicine; Member Perry County, O., Medical Society; Member Licking County Medical Society, etc., etc.

Delivered at Session of Perry County Medical Society held in New Lexington, O., July, 1875.

I. M., æt. 25, consulted me 14th May, 1875, for a chronic urethral discharge. Had considerable matter oozing from meatus; some pain in passing water, and has to pass it very frequently. Is pale; has little appetite; and is thoroughly disheartened. Has been sick many months, and under treatment all the time, and up to the present with little or no improvement.

It is not my purpose to speak of the blennorrhea, or the treatment instituted for it. Suffice it to say he was cautioned about putting his hands to his eyes, mouth, or nose, without previous washing, after attending to the discharge. Contrary to my hopes, however, he presented himself at my office on the 21st May, with the conjunctiva

of both eyes much injected, with considerable intolerance of light.

On examination found a very untidy condition of his privates. He had worn a cloth cap over the head, to catch the discharges, which he only changed twice a week. This I removed, and advised him to wash his cloth every time he removed it, or, what was still better, put on a fresh clean one every time he had occasion to remove it; and to wet it with the same solution I was going to prescribe for his eyes.

For his eyes he was to put a teaspoonful zinc sulphate in five pints clear water, in a white bowl or an earthern crock. With both hands, previously washed clean, dash the solution into his eyes, keeping them open all the time and continuing the application from two to five minutes each time. If they recovered in from three to ten minutes the strength of the solution was right; if the smarting lasted longer, it was too strong, and he must add more water. If they did not feel warm, or have a slight smarting, it was too weak, and he must add more of the zinc. He was to use the same solution until it became soiled, then throw it out and make fresh. And the applications were to be repeated every two or three hours. He was to use the same solution with a syringe as an injection, repeating it as often, and wet the cloth capping with the solution every time it was applied. I again enjoined the utmost tidiness, and for his own sake he was to follow instructions closely.

Notwithstanding all this he failed to carry out instructions, and used only two pints of water in making the zinc sulphate solution. The result was that his eyes did not recover from the first application for thirty hours, and were worse if any thing when he called next evening.

I cautioned him again to follow instructions and make the first solution with six pints of water, instead of five to a teaspoonful of the salt. The evening following his eyes were much better, and in 48 hours after were substantially well; had no appearance of inflammation, and could use them in the strongest light.

The ophthalmia of this patient coming on under the circumstances, was, to say the least of it suspicious. That it was due to the transference of gonorrheal matter seems to me very probable. But it would have made no difference in my prescription whether it was or was not. I

aimed to have him use the zinc wash so weak that its application would simply give a transient sensation of warmth, and recover from its effects in from three to ten minutes. And he was to use it, and did use it, every hour or two during two days, as soon as he was convinced that it was doing him good. He felt reluctant to resume its use after his mistake at first, but did so on being assured that it was the very best application for them of which I had any knowledge.

A. Chilcoat, æt. 30, was working on a roof over some lye tanks in a soap factory, 26th May, 1875; made a misstep, and fell backwards, landing in one of the tanks with about 15 inches depth of the strongest solution of caustic soda in it. He was pulled out very quickly, his clothes stripped from him, and a stream of plain water turned on him from a hose then at hand. His clothes as they left his body were quickly converted into a pulp. Hat and boots destroyed, together with the contents of his pockets. Immediately after a thorough drenching with water, he was washed all over with strong common vinegar, (ascertained by those about the lye tanks to be the best application to surfaces of hands and arms to which strong lye had accidentally been applied), and dressed in a borrowed suit of clothes. He was first seen by Dr. Holston, who applied oil to his face, castor oil, I believe. I saw him a few minutes after. His eye-lids were much swollen; lips swollen; totally unable to open eye-lids; and when they were retracted the mucous surfaces were seen to be white and opaque, though the cornea was clear. He was in much pain. His nose in same situation as his eyes; his mouth badly damaged, too, confined mainly, however, to the front part inside the lips. I accompanied him in a carriage from the factory to his residence, and there made a more thorough investigation of his condition. Found shoulders apparently bruised, at least the skin appeared to be contused, as if by mechanical violence, rather than by the chemistry of the lye. One arm partially in same condition. No other part of his body seemingly injured, except the outer parts of his ears and some spots on his scalp.

His face, nose, lips, ears and sclap, were anointed with simple ointment, with one grain atropia to the ounce;

and to be re-applied every three or four hours. Cloths wet with plain cold water were applied over his face. Gave him solution of chloral hydrate and morphia, to be repeated as required.

27th. Had some sleep last night. His face much swollen; lips and eye-lids very red and inflamed. Conjunctiva apparently raw, red as blood, and much enlarged and spongy. No change in treatment.

28th, evening. Applied with a glass syringe, solution zinc sulphate, teaspoonful to five pints water, to his eyes. Complains a great deal of the smarting to which it gives rise, and was half inclined to be angry about the application. Gave him morphia $\frac{1}{4}$ gr. extra, and the solution of chloral and morphia as on the two previous days.

29th, morning. His eyes did not recover until near midnight from the effects of the zinc application last evening. I had some difficulty in persuading him to continue the zinc wash, applied by his own hands. He finally consented, and I made the solution myself, using only a level teaspoonful to six pints water. Evening. The wash did not hurt his eyes, and he has used it very often to-day.

Monday 30th. Eyes, face, and adjacent parts wonderfully better. Continue wash and chloral mixture.

Evening. Walked down to a drug store several squares to get a prescription filled I had written in the morning to move his bowels. No motion since he fell.

31st, morning. Was out from home at a neighbor's when I called. When he returned I found a very marked change for the better during the night. One eye nearly clear, the other some, but not much, injected.

June 1st, morning. Still better. Had walked to the soap works yesterday, a distance of more than a mile. He continues the zinc wash. His bowels have been moved. Has a good appetite, and every thing in the very best condition.

June 2nd. Was not at home when I called. His family report him nearly well. His subsequent progress was rapid and his recovery complete, without a scar or blemish to mark the location of the injuries.

I introduce these two clinical cases to illustrate the practice, and the principles underlying the practice, of using weak solutions of zinc sulphate, in large volumes

of water, in the remedial management of common ophthalmia, where only the exterior tunics are concerned in so-called inflammatory action, no matter whether occurring as the result of "cold," or of "specific" matter, as in the first case; or of active chemical means, as that of the caustic lye in the second case.

Contrasted with the time occupied in the treatment of such cases by the acetate of lead or nitrate of silver, the agents used in the early part of my professional career, these two cases show rather surprising results. Yet they are just such results as I now confidently expect to obtain, and am seldom disappointed, in prescribing for recent cases of inflammation, or irritation of the superficial tunics of the eye, the attenuated solutions of zinc sulphate in large volumes of water.

No such results would occur in cases of granular degeneration, or where other than the superficial tunics were involved in the morbid changes of structure. Even these mild cases are, or rather were, often troublesome enough to manage with other means. My mistake in early professional life was in using solutions too concentrated and in too small volume.

The cheapness of the article—zinc sulphate—and its very common character, obtainable almost any where, really obscures its therapeutic value, used in this way.

In using it for these purposes I aim to make it of such strength as that applied by both hands to both eyes for from two to five minutes, they shall recover in from three to ten minutes; three to five is better than three to ten; and repeated every hour or two, using the same solution until it became soiled, then making fresh. Besides this, a simple purgative of Epsom salts, or half grain of calomel every six hours till the bowels move, which generally occurs within twenty-four hours. I seldom prescribe any thing else. And in dismissing a patient with such a prescription I have no anxiety about him or her afterwards.

It has this additional merit that it is adapted to children who do not shrink from its use after the first application if it has been made weak enough. As urethral and vaginal injections this strength need not be much exceeded, though the applications should be more frequent, and in much larger volume than with stronger solutions.

Notes in Practice.

By C. L. Gregory, M. D., North Star, O.

Sciatic and crural neuralgia usually yield promptly to half teaspoonful doses of a strong tinct. gum guaiac every three hours, in conjunction with 15 to 20 gr. doses of blue mass every alternate night. Enough mass must be given to clear the bowels rather freely. An excellent prescription is the following:

℞	Fl. Ext. Gelseminum . . .		ʒi	
	" " Black Cohosh . .	āā	ʒi	M.

S. Ten drops every four hours until the toxical effect of the gelseminum, drooping of the eye-lids, is noticed, when the dose should gradually be diminished.

In severe cases of malarial and continued fever an agonizing pain often attacks the shoulder, elbow, hip, knee, etc., and becomes almost unbearable. I saturate a woolen cloth with chloroform and apply to the painful part, covering it with a dry cloth to prevent too rapid evaporation. This gives prompt relief. Internally I give:

℞	Fl. Ext. Gelseminum . . .		ʒi	
	" " Black Cohosh . .	āā	ʒi	M.

S. Five to ten drops every three or four hours, as above.

I use the above prescription when the limb is left stiff and painful during and after convalescence.

My partner, Dr. A. Pearson, cured an old case of neuralgic pain of the hip, which had been diagnosed morbus coxarius by another surgeon, with the above named prescription. Menstrual suppression from cold and exposure was present in this case, but the menses became regular as the neuralgia was cured. She could bear no weight on the affected limb. No opiates were used after the first week of treatment. Time, eight weeks. In many neuralgias, but especially trifacial, I almost invariably prescribe gelseminum. There are but few cases of dental neuralgia that it will not promptly relieve. In this malarious district quinine is also an excellent remedy. Of course the general health must be attended to.

I have been very successful in curing pain in the kidney, spermatic cord, and testicle with:

℞	Bal. Copaiva	ʒii	
	Sweet Spts. Nit.	℥ii	M.

S. One c. p. every four hours.

Keep the bowels regular by small doses of rhei and aloes, but do not purge.

Some women—and men too—are subject to pain in region of heart, with palpitation and shortness of breath, etc. I prescribe:

℞	Fl. Fxt. Valerian	ʒi	
	Chloroform	ʒi	
	Alcohol	ʒvii	M.

S. One-half to one c. p. every 15 to 30 minutes till relieved, then as indicated.

Dilute it well with water or syrup.

It acts exceedingly well in those cases, and also in hysterical attacks. I use it in some cases of labor, especially when the woman is anxious, nervous, and excited; also when the pains seem to be located mostly in the back. It calms her down and labor progresses much more satisfactorially to all concerned.

For dyspepsia and indigestion I prescribe the following:

℞	Rhei Pulv.		
	Cubebs "		
	Hydras. Can. Pulv.		
	Brom. Pat., . . .	ā ā one part	
	Quinia Sulph., . . .	half "	M.

Triturate them thoroughly, and to an adult give twelve gr. doses four times per day.

Mr. C. had a distressing pain in his stomach for which he took a large swallow of spts. camphor, which was pure alcohol saturated with the gum, and as a consequence his mouth, throat, œsophagus and stomach became so inflamed and tender that he could scarcely swallow even liquid food. Various remedies were tried for a week, when I put him on a saturated solution brom. pot., a tablespoonful every three hours. He was completely cured in 48 hours. This also acts well in acute conjunctivitis, one or two drops in the eye four times a day. Used as an injection in simple vaginitis it is good.

In some cases of atonic diarrhea, where the bowels move every time any thing is swallowed, and medicine does no good, I have used a strong decoction of coffee with excellent success. Use it cold and clear, letting an adult drink from a half to one pint every three or four hours. After twelve to twenty-four hours let patient com-

mence on boiled or thickened milk, gradually expanding his bill of fare. Brandy made quite thick with flour is also good in these cases.

In dysmenorrhea a pill composed of one gr. opium to one-half gr. ext. belladonna every three hours is quite beneficial. In the neuralgic form I use, in addition to the pill gelseminum and cohosh ā ā, mix, ten drops every two hours. In the neuralgic form it is imperative to institute a tonic, and building up treatment during the inter-catamenial period.

Pityriasis Versicolor can be quickly and permanently cused with:

℞	Nat. Sulphite	ʒi	
	Glycerine	ʒiv	
	Water	"	M.

Use a as lotion once a day.

Acne in all its forms, except perhaps *A. Rasacea*, can be cured by restraining the appetite, eating very moderately, and having the diet constituted principally of oily articles. Also use the following after meals:

℞ Solut. potassa arsen.

S. Two to six drops in water.

A Case of Eclampsia.

By A. J. McIntosh, M. D., Allendale, Illinois.

Was called at half past 7 o'clock on the morning of February 6th, 1876, to see Mrs. M——. Was told that she was at the full term of her first gestation, and that labor pains had set in during the early part of the previous night; that the pains had been regular and gradually increased in frequency and force, until 11 o'clock, when Doctor —— was called in, and under whose tender care she had been during the night. On inquiring into her previous health, was informed, that for two weeks it had been bad, that she had been complaining of dizziness, pain of the head, and various noises in the ears, and that she spoke of feeling very curious. Bowels had been sluggish; urine scanty and highly colored, and on cooling let fall an abundant lateritious deposit. The doctor informed me that he had discovered nothing wrong, until three

o'clock, when the pain entirely ceased, and convulsions set in, and that he had been giving her nothing but some pulv. ergot, and small doses of ipecac. These he had given, off and on, since his arrival at the scene. Judging from the account given by the attendants, the pains, after the doctor's arrival, had been fearful. The uterus, which had been goaded to fury by the repeated doses of ergot, was now in a state of inertia. The head of the child was found just touching the perineum, in which position the doctor said he found it at 11 o'clock the night before. But if this was the case, with such active pains, why was the child not expelled? On my arrival she was just recovering from the fifth paroxysm, the first being so severe as to render her perfectly insensible to all surrounding impressions, in which condition she remained throughout the intervals. Not being informed of the case, I had to return for my forceps, chloroform, etc., as the doctor had none, and so far there had been nothing done to control the convulsions, or assist the delivery. On seeing her again, she was convulsed the sixth time. The paroxysm being controled by the inhalation of chloroform, the forceps were applied and the child delivered, living, but very feeble, (alive and well at this date, May 18th, 1876). The convulsions now ceased for about six hours, and again returned at varying intervals for about twenty-four hours, when death closed the scene. The course continued from the first paroxysm until death, the brain being perfectly overpowered by the first shock. Urine drawn by catheter, threw down, by heat and nitric acid, about one-fifth of its bulk of albumen. Venesection, the sine qua non in this case, was not resorted to for the reason that the patient, with a quick and barely perceptible pulse, was considered to be almost in articula mortis when first seen. Most of the medicines administered by the mouth ran out, and was not swallowed. The inhalation of chloroform gave all the relief that was obtained. Had the forceps and venesection been called in requisition in this case, even at three o'clock in the morning, (which was not done until eight), I have do doubt but it would have terminated more favorably; and had the premonitory symptoms been understood and judiciously treated, it is highly probable that neither would have been required. But in the ordinary course of events, such cases will now and then occur, and such treatment must be expected so

long as our state has no law upon her statutes governing the qualifications of her medical practitioners. The state of Illinois is just as strenuous in her requirements as to the qualifications of her medical officers for the army, navy, and her public charities, as any state of the union, which is evidence that she does not ignore medical ability. Then how inconsistent that a higher grade of medical qualification is required for treating our soldiers and sailors than for our parents, wives and little ones. The law of the state of Texas, in the absence of a better, is applicable to our own, and would be some protection to the canaille, who, of all things, know least of medicine, and who unwittingly suffer all the impositions of quackery. It would also afford some protection to the physician, who has spent the best part of his life, and all his fortune, in the acquisition of that knowledge so essential in the hour of peril.

Conjunctivitis.

By W. R. Amick, M. D., Cincinnati, O.

The conjunctiva is a mucous membrane. It commences at the margins of the lids, being a continuation of the common integument, and lines their posterior surfaces. Near the orbital border of the lids it changes its course, and is reflected over the anterior half of the sclerotic. That portion which lines the posterior portions of the lids is called the *palpebral conjunctiva*, the portion reflected over the globe is termed the *ocular conjunctiva*. Conjunctivitis simply means an inflammation of this membrane. The inflammation may be confined to that portion of the membrane on the lids, or it may extend and involve the ocular portion.

In order to examine the upper eyelids properly it is necessary to evert or turn them. Although it is a simple operation, yet there are some who do not succeed in the attempt. About the easiest way is to take hold of the lashes, or margin of the lid, with the thumb and fore-finger of the left hand, at the same time directing the patient to look downward. Then take a probe or pencil and place the end of it a little above the middle of the lid, and with a quick movement you raise the margin of the lid up over the end of the pencil, at the same time you press

the upper part of the lid downward. Then by pressing the edge of the lid backward against the margin of the orbit, and removing the pencil, the conjunctiva will be brought into view. The fore-finger of the right hand is some times used instead of the pencil. The conjunctiva will be red and swollen. The meibomian glands, which in a normal condition of the conjunctiva can be seen, are now nearly or entirely hid from view. The inflammation generally commences in the conjunctiva of the lids, and, if sufficiently severe, extends to the ocular portion, and may extend to the margin of the cornea. When the ocular conjunctiva is inflamed we find it characterized by a superficial net work of coarse blood vessels. By moving the conjunctiva these vessels will move over the sclerotic, the latter being seen through the meshes. If the inflammation extends deeper and involves the vessels of the subconjunctiva, then we would find a different state of affairs. Instead of a coarse net work of blood vessels of a brick red color, that was movable over the sclerotic, we would see fine vessels of a rosy hue, that run from the cornea directly outward, and not movable. These vessels would lie so close together that the white sclerotic could not be seen. The temperature of the lids is sometimes increased; they may be swollen and œdematous. If the inflammation is severe, there may be an infiltration of serum into the ocular conjunctiva, raising it up around the cornea like a wall. This œdematous condition of the ocular conjunctiva is called chimosis, and is generally more marked in purulent or gonorrheal ophthalmia.

At first there is an increased secretion of tears. The patient has a sensation as if there was dust, dirt or grit in the eyes, and rubs them frequently. Later there is a mucous discharge with more or less pus mixed with it. The eyelids are glued together of a morning by the secretion collecting along their edges during sleep. There is generally not very much pain, and light is not very painful. About the only effect on vision is, that on account of the secretion on the cornea objects are sometimes indistinct, but by "winking" or cleansing the eye with tepid water, this is generally removed.

The causes of conjunctivitis are exposure to cold or wet, heat or glare as from a furnace, smoke, dust, working at fine work by artificial light, etc. It may be produced by contagion.

The mild forms of conjunctivitis do not last but a few days, and are generally very easily subdued. It may run its course and get well without any treatment.

In the common forms, where there is not a very severe grade of inflammation, the treatment is simple and easily executed. If there is constipation, give a saline cathartic. If there is considerable increase in the temperature of the lids, apply cold water dressings to them. If the cold is not soothing and there is pain in and around the eyes, then make warm applications of hops or poppies. In severe cases where there is much inflammation as well as pain, then leeches will be beneficial. They should be applied to the temple or at the inner corner of the eye over the lachrymal bone or ossa rengins. Leeches should not be applied directly to the lids, as there is danger of an infiltration of blood into the cellular tissue, or even of erysipelas following. The next in order will be the application of astringents. We are supposing the case to be uncomplicated, that is, no trouble existing in the cornea, iris, ciliary, etc. About the best astringent to commence with is sulphate of zinc, grs. iii to the ounce of distilled water. Sometimes a little morphia is added to the solution. The application may be made three times a day, putting about four drops in the corner of the eye each time. A few days with this treatment is frequently all that is necessary. The acetate of lead, sulphate of copper or nitrate of silver, two grains to the ounce, is frequently found to answer an excellent purpose. The attendants should be warned not to use the same basin or bowel that has been used in cleansing the eyes, as there is danger of its being transferred from one to another in so doing. When the patient goes out he should wear a shade to protect the eyes from wind and light. If there should be any trouble with the cornea or iris atropine should be used.

A Case.—John Brown, æt. 45, came into the office and said he had sore eyes. Now John, like the majority of people, calls all affections of the eyes by one name, viz., sore eyes. Stated that he had been out hunting and got caught in a shower, getting very wet. The next day his eyes began to be a little red and "watery." He thought the trouble would pass off in a few days and paid very little attention to them. The next day they were worse and he began to

feel a little anxious, so he consulted one of his neighbors to know what he should do. His friend told him that he knew what would cure them. His mother's grandfather knew a man who had had sore eyes for a long time, that he put every thing in them that he could hear of and came very near going blind. But after while he put something in them and they got well. He had forgotten what it was but John Smith could tell him. Now John Smith knew something about sore eyes He had heard of a fellow who had had them and went to a doctor for treatment. The doctor found that something had grown over the eyes and took a knife and scraped it off, then the eyes got well. Smith told Brown that he thought that that would be the best thing for him to have done. Not being satisfied with Smith's advice, Brown called on an old lady who had heard of some body being cured of a sore eye, by putting in it a mixture of vinegar and water, and bathing it with salt and whisky. John tried this and it did no good. Said he did not mind the salt, but did not like to waste the whisky in that kind of style. One of his friends advised him to take catnip tea, but it was to be taken cold, without any sugar in it, also to drink it through a large stem. All this he did without any benefit, and finally we saw him. We commenced treatment by giving a dose of Epsom salts. Then gave him the following:

℞ Zinci Sulph. . . . . . . gr. iv
Aq. Dest. . . . . ℥i M.

Sig. Four drops in the eyes three times a day.

This was the course pursued, and in about a week he had no more trouble with his eyes. As stated before, the tendency is to get well, and no doubt if he had not irritated his eyes with the different remedies (?) that he heard of, protected them with a shade, and used a three grain solution of alum three or four times a day, they would have been well ere the time we saw him.

In the last number of the Medical News we reported a case of divergent squint. Immediately following the operation he saw objects singly to within about eight degrees of the median line on the right. At present he can see objects singly up to, and twenty degrees beyond, the median line, *i. e.*, to the left of it. When he views an object directly in front of him, at some distance, he has diplopia,

or double vision. But if the object is brought close to his face, he sees but one, and continues to do so until after it has been moved eight or ten feet from him, then the left eye generally deviates, turning outward. To-day he can maintain single vision at a greater distance than he could five days ago. This signifies that he is improving, and the prospect is, that in a short time he will see objects singly at a distance, as well as near his face. He has no trouble in reading fine print, using both eyes at the same time. He still has a slight degree of dizziness when he walks with the left eye closed.

Mr Cook, 20 Stark street, accidentally got some sulphuric acid in his right eye while at work in the vitriol establishment of Marsh & Harwood, on Nov. 17th, at the time he was luting, having some soft clay saturated with the acid. A small piece of the clay flew and struck him in the inner corner of the eye. The pain was so great, that he began to rub the eye immediately, which spread the clay around over the conjunctiva and cornea, especially the former. The clay was removed as soon as possible, and Dr. M. L. Amick called in. We immediately cleansed the eye with cold water, and gave morphia to relieve the severe pain. We saw the patient about two hours after the accident occurred. The conjunctiva was red and injected. Whenever he opened the eye the hot tears ran down over the cheek, and the pain became more severe. All of that portion of the ocular conjunctiva between the margin of the cornea and the inner canthus, extending from the margin of one lid to the other, with the eye open, was destroyed. The inner margin of the cornea, extending over an arc of three lines, and a line in width, was perfectly white, looking like a very marked degree of arcus senilis. The rest of the cornea was normal. The iris appeared to be slightly swollen. The lids were red and swollen, the patient still complaining of pain,

In addition to the treatment already instituted, we put a few drops of olive oil in the eye. A four grain solution of atropine was ordered, of which four drops were to be put into the eye every two hours. The next day the patient felt much easier. The inflammation was as marked as on the preceding day, pus being secreted so freely that the eye had to be cleansed every hour. The iris was about half dilated. The inflammation in the lids was more

marked, extending down below the malar bone. This œdematous portion was of a reddish cast, with an increased temperature. It was of a puffy rather than a doughy nature, and did not have that dusky hue of erysipelatous inflammation. A solution of acetate of lead and also of arnica was used. The atropine was continued every two hours. On the third day, there was an improvement of all of the symptoms. Pus was still secreted freely. No change in treatment, except the atropine, which was used every three hours. On the fifth day, a three grain solution of zinci sulph. was ordered, to be used three times a day. Eight days after the accident his eye was nearly well. There was still a little hyperæmia of the conjunctiva, the white line on the cornea had disappeared, the iris was normal, and there was no œdema of the lids. About all that remained to be seen was the edge of the conjunctiva, showing the extent of the destructive action of the acid.

On the Visibility of the Lines of Nobert's 19th Band when amplified 540 diameters, considered in relation to their Apparent Distance and Visual Angle.

By Geo. E. Blackham, M. D., Member of the Club; President Dunkirk Microscopical Society, Dunkirk, N. Y.; Corresponding Member of the Fairmount, Memphis and Jamestown Microscopical Societies, etc.

Read before the Buffalo Microscopical Club, Thursday, Dec. 7th, 1876.

The history of the evolution of refracting optical instruments, or at least of two of them, viz., the refracting telescope and microscope, is the record of a series of attempts, on the part of theoretical opticians and philosophers to define the limits to which the performance of the instruments could be pushed, and the successful efforts of the practical opticians and instrument makers to make the performance of their instruments exceed the limits which had been, on *a priori* grounds, set for them.

Sir Isaac Newton, the discoverer of the law of gravitation, and the first who studied the phenomena of the solar spectrum, was led from his experiments on the dispersive power (*i. e.* the chromatic aberration) of glass lenses, to declare that the rude refracting telescope of his day was incapable of improvement, and to turn his attention to reflecting instruments as the only mode of improving

telescopic vision.* After a time, however, the varied proportions between the refraction and dispersive powers of the various media, especially flint and crown glass, were discovered, the method of correcting the aberrations of convex lenses of crown glass by concaves of flint followed, the achromatic object glass was invented, and the very optical law which Newton believed would prevent the improvement of the telescope, has proved, when more fully known and better understood, to provide the means by which the telescope has been improved far beyond anything which could have been dreamed of in Newton's time.

The laws of optics were all right, and Sir Isaac, having misunderstood them in spite of his marvelous intellect, was *wrong*. The books on optics had to be rewritten or revised, but the cause of science was advanced.

Quekett, in his treatise on the microscope, after speaking of Lister's discovery of the two aplanatic foci of achromatic combination, and those of Ross in reference to effects of the covering glass, and his invention of the screw collar correction, stated, that "the enormous angle of 135° had been reached," and that "135° was the largest pencil of light that could be passed through a microscopic objective." †

This statement attracted the attention of the now venerable Chas. A. Spencer, then a young optician in a backwoods town in this state, and he soon demonstrated its erroneouness by producing his famous $\frac{1}{12}$ with an angle aperture of 146°; and immersion objectives have since been made, whose immersion angle is more than 90°, corresponding to an air angle of more than 180°. The limit of resolving power, that is, of the closeness of parallel lines which could be seen as distinct lines with the microscope, even if it should be made theoretically perfect, has often been set, and there is a curious agreement in the limits which have been set by various theorists. The following are quoted from an article by Dr. Royston Piggott, in the *London Monthly Microscopical Journal*, for June, 1870.

Mr. Ross, in 1855, placed it at 80000 to the inch; Dr. Carpenter (2 Ed. 1859) at 85000; Messrs. Sullivant &

* Newton's Optics, Part I. Prop. vii. Theor. vi.

† Frey. "The Microscope and Microscopical Technology, translated by Cutter," New York, 1872.

Wormley believed that the 27th band on Nobert's 30 band plate, 81213 to the inch, gave the limit of resolvability. Mr. John Mayall, Jr., in the *M. M. J.*, for February, 1869, says:

"With the $\frac{1}{8}$ and $\frac{1}{12}$ Ross, the $\frac{1}{20}$ Smith, and with the $\frac{1}{8}$, $\frac{1}{12}$, $\frac{1}{16}$, and $\frac{1}{25}$ by Powell & Lealand, all dry objectives on a new 19 band plate (Nobert), all the bands beyond the 12th (73186 to the English inch), seemed imperfect—the lines were not separated."

Professor Helmholtz, a great mathematician, physiologist and physicist, quoted by President H. C. Sorby in his Presidential address delivered before the Royal Microscopical Society, in London, February 2, 1876, proceeds to show that this limit of distinct vision depends upon the angle of divergence of the light entering the object glass, and on the wave length of light according to the following relations:

d = distance between the lines.

a = the angle of divergence.

$\hbar$ = length of the wave of light.

Then we have $d = \dfrac{\hbar}{2 \sin. a}$

"The angle of divergence is equivalent to one-half the true aperture, when illuminated by an equally large pencil of light."

All the calculations are made for true focal adjustment and correction of the lenses.

President Sorby goes on to say: "Adopting, then, the most simple applications of Helmholtz's formula as an illustration of the general question, I have calculated what is the limit for the red and blue ends of the spectrum, and for the mean rays, according to the following wave lengths given for simplicity in fractions of an inch.

Red end.	$\frac{1}{37350}$
Mean rays.	$\frac{1}{46180}$
Blue end.	$\frac{1}{60470}$

I have also calculated the limit for a few widely different angles of divergence, giving double these angles in order to make the comparison more simple with the angle of aperture, so usually expressed, assuming of course that the angle of divergence of light from the condenser is equally great.

60° which gives the wave length as limit.
97° " " $\frac{3}{4}$ " " " " "
120°
150°
180° or an angle so great that its sine is near unity, whether practically possible or not. This gives for the limit half the wave length of the light.

The results are expressed in the following table, in which I give the nearest round numbers: (I have added to President Sorby's table a column for divergence of 15° = aperture of 30°)

	G. E. B.'s Calculation. 30°	60°	97°	120°	150°	180°
Red end . .	$\frac{1}{19334}$	$\frac{1}{37000}$	$\frac{1}{55000}$	$\frac{1}{64000}$	$\frac{1}{71000}$	$\frac{1}{74000}$
Mean rays .	$\frac{1}{23904}$	$\frac{1}{46000}$	$\frac{1}{69000}$	$\frac{1}{80000}$	$\frac{1}{89000}$	$\frac{1}{92000}$
Blue end . .	$\frac{1}{31300}$	$\frac{1}{60000}$	$\frac{1}{91000}$	$\frac{1}{10400}$	$\frac{1}{116000}$	$\frac{1}{120000}$

All these limits are calculated for dry lenses. For immersion lenses *of equal aperture* the limits would be about three-fourths of the various magnitudes here given."

These calculations of President Sorby, founded on the formula of Helmholtz, give in round numbers 160000 to the inch, as the utmost limit of resolving power of a theoretically perfect immersion lens, with the object illuminated with the extreme blue rays only; and of 99000 to the inch when illuminated with the red rays, or with light, like unmodified day or lamplight, into the composition of which the red rays enter.

For a long time the practical results harmonized well with the theoretical. The 27th band of Nobert's 30 band plate, 73,186 lines to the inch, and the 16th band of the newer 19 band plate, 95,705 lines to the inch, seemed to give the *ultima Thule* of resolvability; and even when, in 1869, Col. Dr. Woodward succeeded in resolving and photographing the true lines of the 19th band, 112,594 to the inch, with Powell & Lealand's immersion $\frac{1}{16}$ ($\frac{1}{20}$ when used wet), and monochromatic blue sun light, this result was still considerably within the limits of possibility, according to the formula of Helmholtz.

But when Mr R. B. Tolles produced his new formulæ $\frac{1}{6}$ and $\frac{1}{10}$ duplex front immersion lenses of more than 180°

air aperture, and in his own hands, and those of Prof. J. Edwards Smith, of Ashtabula, Ohio, and some others, they resolved the 19th band (112594 lines to the inch), by lamp-light, into the composition of which the red rays entered plentifully, the limits set by the highest theoretical authority were once more passed, unless, indeed, their excess of air angle above 180° be taken as a possible explanation of their performance, and a beautiful theory be thus rescued from too rude collision with an ultimate and demonstrated *fact*.

When I state as a fact that the 19th band of Nobert's 19 band plate has been resolved, with Tolles' duplex $\frac{1}{6}$ and artificial (polychromatic) light, I expect to find (especially among microscopists who have used only lenses of foreign make,) doubters; and when I further specify that it was done with the B. (one inch) eye-piece, giving an amplification of only 540 diameters, I expect to find the number of doubters increased, and their doubts strengthened. I have found four different classes of objectors to this statement:

1st. Those who bluntly say, with more candor than courtesy. "I don't believe it. It is only an advertising dodge. It is downright puffery."

As this objection casts a totally unwarranted imputation upon the good faith and honesty of every man who claims to have seen the 19th band so resolved, it takes the discussion into a field which I can not enter, and I have no reply to make.

2nd. The class who said, in effect, "I dont believe it because I never saw any such thing, and I know plenty of other good microscopists who never did." To this class I say, that proves nothing. No amount of negative testimony is good against the positive testimony of two or more reliable witnesses. The man who was accused of stealing on the testimony of two good witnesses, who saw him in the act, was not acquitted, though he offered to bring forty witnesses who did *not* see him. The witnesses who *have* seen the 19th band resolved by lamplight with Tolles' $\frac{1}{6}$ and 1-inch eye-piece x 540 diameters, are many more than two, and some of them are here to-night.

I presume it would not be difficult to find a large majority of microscopists (including under that head all who own or use a microscope), who have never seen the hexagons of *pleurosigma angulatum* with central light.

Not that the feat is not an easy one, as I can easily demonstrate, but that either their lenses or their manipulation has been at fault, or both, or that they have never tried the experiment.

3rd. Those who fall back on the dicta of Professors Helmholtz and Abbe, and President Sorby, and say: I dont believe it, because from the very nature of sight the thing is an optical and physical impossibility. To this class I say, that is a nice formula, very nice, but it falls short of the facts. The thing has been done and can be done again by any one who is in possession of the following requisites, viz: a good microscope stand with stage thin enough to admit light up to 80° from the axis of the body, and a concave mirror of such curvature that it can be accurately focussed upon the object slide; a Tolles' duplex lens of 180° air angle; (there may be other lenses that will answer, but I know of none,*) a Nobert 19 band plate, a lamp giving an intense and steady light, one good eye; last, but not least, sufficient manipulative skill. As I have no Nobert plate, I can not make the demonstration to-night. But I can appeal to those present who have seen the feat performed by Prof. J. Edwards Smith, to endorse the statement.

4th. The class who say: "Waiving all other objections, a power of 540 diameters is too small to make the lines visible, because the apparent distance of a pair of them, thus amplified, is too small to be distinguished by the eye at a distance of ten inches, or, in other words, the visual angle subtended by that apparent distance is less than the minimum visual angle for distinct vision."

It is to this last class of objectors that I address myself principally this evening, and my answer is, that the apparent distance from centre to centre of a pair of lines of the 19th band at an amplification of 540 is by no means too small to be distinctly recognized by the normal human eye, nor is the visual angle subtended by them the minimum for distinct vision.

The formula taken from Dr. Piggott's paper in the *M. M. J.*, for June, 1870.

$$\left.\begin{array}{l}\text{The No. of seconds sub-}\\\text{tended by a pair of lines}\end{array}\right\} = \frac{20627 \times \text{No of diameters ampified.}}{\text{No. of divisions to the English inch.}}$$

in which the factor 20627 is obtained by dividing unity by

* Dr. Cutter in his translation of Frey *l. c.* states that Spencer has resolved the 19th band with his ¼ of 175° and artificial light.

the natural sine of one second, gives for a pair of lines of the 19th band, x 540, a visual angle of 99 seconds, very nearly.

The apparent distance from centre to centre is of course obtained by multiplying the real distance by the number of diameters, or the apparent number of lines to the inch by dividing the real number by the diameters. The apparent number of lines to the inch in this case is 208.3; thus, $\frac{112594}{540} = 208.3$.

Now, as I have said, I do not believe either of these values to be the minimum for distinct vision, (I speak always of the normal human eye unless the contrary is specified), and I propose to demonstrate experimentally the correctness of my belief to each of you who is possessed of one good eye, before the meeting adjourns.

I offer first, however, the following statements of facts, derived from personal experiment:

There is visible from the front of my residence, and at a distance of somewhat more than 700 feet, a picket fence, the pickets of which are just 4 inches from centre to centre (of an adjoining pair), the width of the pickets and interspaces being about equal, giving 3 pickets and 3 spaces to the foot.

Now by the following formula, which is a simple modification of Dr. Piggotts, viz:

$$\left.\begin{array}{r}\text{Angle subtended by a pair of}\\ \text{pickets from centre to centre}\end{array}\right\} = \frac{206270}{\begin{array}{c}\text{No. divisions}\\ \text{to the foot}\end{array} \times \text{No. of feet distant.}}$$

The visual angle is found to be a trifle more than 98°, and the apparent distance from centre to centre $= \frac{1}{280}$ of an inch at 10 inches. At the distance of 700 feet, I can distinguish the separate pickets with ease on a clear day with the unaided eye, though their visual angle and apparent distance are a trifle less than the corresponding values for the lines of the 19th band x 540.

To correspond with these results the unaided eye should be able to distinguish lines $\frac{1}{280}$ to the inch at a distance of 10 inches, and, in fact, I have myself been able to distinguish, under proper conditions as to illumination, lines 200 to the inch on one of Prof. Rogers' ruled glass micrometers, though with some difficulty, which arose, in my opinion, not so much from the closeness of approximation as from the extreme tenuity of the lines themselves, which are much smaller than the interspaces, and

do not, I think, exceed, if they equal, $\frac{1}{10000}$ of an inch in diameter.

I have not as yet been able to obtain a micrometer ruled 300 to the inch, but am now in correspondence with Prof. Rogers in reference to ruling a micrometer, consisting of five separate bands, ranging from 100 to 500 to the inch, in which the lines shall be more robust than in ordinary micrometers, the lines and interspaces being of nearly equal width, as is the case in the 19th band. With this I hope to push this investigation farther, and confidently expect to be able to resolve with my naked eye. under proper conditions as to illumination, etc., lines 400 to the inch, or even closer.

Now, so far as visual angle and apparent distance is concerned (and it is this point alone I am now discussing), it makes no difference whether we see lines 112594 to the inch with a power of 540 diameters, or lines 20830 to the inch with a power of 100 diameters, as the visual angle in each case is only a small fraction of a second less than 99″, and the apparent distance about 208.3 to the inch. Now if I can show lines as close as 20830 to the inch with a power of 100 diameters, I shall of course claim to have demonstrated that, so far as apparent distance and visual angle is concerned, there is nothing impossible in the resolution of the 19th band x 540. But I shall not be content with this, I shall show to each one here, who desires to see them, and has one good eye to see them with, lines 24000 to the inch clearly resolved with my Tolles 1-inch objective of 30° aperture and $\frac{1}{2}$ inch solid eye-piece x 200 diameters; same objective and B eye-piece x 75 diameters; and same objective and A eye-piece x 50 diameters.

Let us now make a table for comparison: *

	Amplification.	Objective & E. P.	Apparent No. lines to inch.	Visual angle in seconds.
19th Band.......	1000	P. & L. $\frac{1}{16}$ ($\frac{1}{20}$) & A. E. P.	112.6	183″
24,000 to inch...	200	Tolles' 1-in. & $\frac{1}{2}$-in. E. P.	120	172″
19th Band.......	540	" $\frac{1}{6}$-in. & B "	208.6	99″
24,000 to inch...	75	" 1-in & B "	320	64½″
19th Band.......	270	" $\frac{1}{6}$-in. & A "	416.6	49½″
24,000 to inch...	50	" 1-in. & A "	480	43″

* In this table the B eye-piece used with the 1-6 was somewhat more powerful than that used with the one inch, the experiments being made at different times and on different stands. This shows the desira-

Having shown these resolutions, I shall have demonstrated that, so far as visual angle is concerned, it is quite within the bounds of possibility to see, as I and others have done, the lines of the 19th band x 540 and even x 270 diameters.

But further, if I shall show the lines 24000 to the inch with a lens having angular aperture of 30°, or less, I shall have demonstrated the insufficiency of Helmholtz formula, for by that formula the limit of resolution for a lens of 30°, and light into the composition of which the red rays enter, is 19334 lines to the inch. In fact, this formula must now be laid aside as insufficient, as has already been done with that of Fraunhofer adopted by Nobert in his letter to Col. Dr. Woodward, February 26, 1869,* $\sin x = \frac{\hbar}{b}$ which gave the wave length as the extreme limit of resolution for objectives of extreme aperture.

In view of all these facts I can not consent to accept the dicta of even such high authorities as Professors Hemholtz and Abbe, and President Sorby, that the limit of resolving power has been reached, and that it is, for any light into which the red ray enters, 74000 lines to the inch for dry lenses, or 99000 for immersion lenses, for the latter limit has already been exceeded. Had the dictum of Newton been accepted as final the great 26-inch refracting telesccpe at Washington would never have been constructed; and if Helmholtz formula be accepted, there is an end to the improvement of microscope objectives.

But the limits have been already passed, and I believe that the end is not yet; the future optician shall give us better lenses than the best of to-day. Let us not then either despair of improvement nor sit down satisfied that perfection has been reached, but rather, in the words of the venerable Chas. A. Spencer, the father of American microscopy, "search out the the faults of our best objectives, and insist that the maker shall do better the next time, in the full confidence that, while absolute perfection can

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bility of abandoning the plan of naming eye-pieces A, B, and C, or 1, 2' and 3, and adopting a nomenclature founded on their amplifying power, as is now the case with English and American objectives. In such an improved scheme of nomenclature (which has been adopted by Mr. Tolles); the 2-inch eye-piece would correspond to the A eye-piece; the 1-inch to the B; ¾ to the C, etc., etc..

* Monthly Microscopical Journal, Dec. 1869, page 290.

never be reached, it can and shall be constantly approximated."

After the paper was read, the finest lines on the micrometer contributed by Prof. W. A. Rogers, of Cambridge, Mass., to Box 15 of the American Postal Microcabinet Club, and by him stated to be 24000 to the inch, were resolved with my Tolles' one inch objective, and the A. B. and $\frac{1}{2}$-inch solid eye-pieces. Every gentleman present stated that he saw the lines distinctly, but some added that they felt there must be a fallacy somewhere, as they could not believe that separate lines could be recognized at so small a visual angle. I have compared these lines with my own micrometer, ruled by Prof. Rogers, and find that 12 lines on the last band of this occupy precisely the same space as $\frac{1}{2000}$ of an inch on mine. On comparing mine with one of Beck's ruled to $\frac{1}{1000}$ of an inch, I find they agree accurately.

Selections.

The Relation of Trophic changes to certain alterations of Sensation and Motility.

By ALLEN McLANE HAMILTON, M. D., Visiting Physician to Epileptic and Paralytic Hospital, New York; Member of American Neurological Association, etc.

One of the most attractive neuro-physiological studies is that of trophic influence, and though the existence of trophic nerves is denied by many, there are, on the other hand, a number of able investigators who have given us reports of definite and valuable experiments, which clearly prove the existence of certain nerve fibers, which markedly influence nutrition. The neurologist will constantly meet with clinical examples of such changes, which are beautiful evidences of this form of pathological action.

It was Waller who announced the indisputable fact that nerves cut off from their centers degenerate. This may be demonstrated by cutting the posterior root of a spinal nerve between the intervertebral ganglion and its emergence from the cord. The part attached to the cord degenerates, while that connected with the ganglion retains its vitality. If, on the other hand, the cut be made

at the distal side of the ganglion, the remote trunk degenerates, while that coming from the ganglion is uninjured. This shows rather conclusively that certain nerve trunks depend upon their connection with, and the normal condition of, the ganglionic centers they may be attached to. This experiment will enable us to appreciate how disease, such as neuritis, for example, may destroy the connection of any nerve with a ganglionic center, and peripheral changes may result.

Again, in certain central diseases, such, for instance, as progressive muscular atrophy, it will be found that certain cells in the antero-lateral columns of the cord are destroyed, which send fibers to special muscles which are atrophied, while other cells in the locality remain healthy. Duchenne and Westphal advanced this idea to trophic cells, and clinical experience certainly proves that they may not have been wrong in their conclusions.

In defiance, however, of this law of Waller's it is proved, by one disease especially, that the other functions of a nerve, whether it be sensory or motor, may remain perfectly intact, and still trophic changes may folllow. Brachet, Flint, and others have proved that development has taken place in monsters, who have lived some time without any cerebro-spinal axis. Consequently this is an argument for the dependence of nutritive changes upon vaso-motor action.

As an example of the disease I have alluded to, where a healthy cerebro-spinal nerve may exist, and still trophic changes of the most decided character may occur, I may mention progressive partial facial atrophy. So far, I think, no post mortem examinations have been made, but even if they have not, there is no affection of sensation or motion which points to the normal condition of the cerebro-spinal nerve fibers.

I think we may assume that trophic processes are closely connected with modifications of sensorial and motorial function, though they may not be directly dependent upon either.

I. Trophic changes may be influenced by altered sensation alone.

II. Trophic changes may be influenced by motorial alterations.

III. Trophic changes may occur independent of any alteration of motorial or sensorial function.

Neuralgia furnishes us with examples of the first class, and a continued hyperæsthetic condition may be followed by—1. Muscular atrophy. 2. Destruction of hair and pigment cells. 3. Eruptions dependent upon local loss of vitality. In sciatica oftentimes the affected leg will be an inch or more less in circumference than its fellow, and in facial neuralgia the wasting of certain muscles of the face is sometimes seen. Nothnagel considers atrophy following sciatica to be due to an affection of the nerves governing the vessels, and that the loss of substance depends upon an insufficient blood supply. Of thirty cases he examined, five were found with atrophied limbs, and "four of these were complicated with vascular cramp," and not to any change in the nerve fibers themselves. Now I think it has been sufficiently proved that trophic changes (*per se*) may exist without any vascular complication whatever. This can be verified by the observations of Himes and others, who have found unilateral vaso-motor neuroses of long standing without any wasting. Even supposing such want of use, on account of the painfulness of the effort, be given for a cause, I do not think it will account for the change, for many cases have been met with in individuals who took as much exercise as others more healthy. The blood supply of the muscles is clearly not interrupted.

Neuralgic patients occasionally attract attention on account of certain curious changes of the hair of the head and face. White tufts in the track of the supra-orbital branch of the fifth nerve, white hairs in the eyebrows, etc., bear evidence of the close connection between severe pain and trophic changes.

Weir Mitchell relates a number of instances, some of which I have seen repeatedly. Not only does the hair fall out sometimes with neuritis, but it may also become thick or bushy. These changes have been witnessed chiefly in the cases of hyperæsthetic skin, by Larrey and others. Weir Mitchell dwells upon cerain trophic alterations following paralysis, and he has seen the hair disappear from the fingers, and the nails become curved.

A familiar illustration of this mal-nutrition which follows acute pain is the curious state of the teeth which old neuralgics suffer.

In one case under my charge at present the teeth on one side are perfectly white, sound, and healthy, while

the others had become carious and fallen out. So extensive is the alopecia in this individual that I am inclined to think it is the result of syphilis, but am unable to trace it to that disease.

These changes are admirably exemplified by various skin diseases, attended by exquisite pain. Herpes zoster is the most pronounced, perhaps, of this class. It is without doubt the result of disordered nerve action, and is connected with neuralgia, such neuralgia and the eruption being cured by galvanism. Certain remedies, acting upon the nerve centers, will accomplish the same result, while local ointments do no good whatever.

Vulpian has recently shown the existence of pemphigus with certain amytrophic paralyses, and we may consider these skin diseases to depend upon imperfect vitality of the skin. Cases have been published of obstinate ulceration of the cornea dependent upon facial neuralgia, and these trophic changes, as well as those I have mentioned, disappear with the pain under appropriate treatment, the opacity and ulceration passing away. It is almost unnecessary to dwell upon the myopathies following occlusion of motor fibers, or trunks, atrophies which are due not only to subsequent want of exercise, but to central destruction as well.

A striking and beautiful illustration of the third class is partial facial atrophy. In this disease there is absolutely no pain, nor is there impairment of voluntary muscular power. The train of symptoms is peculiar: 1. Loss of hair, or change of color. 2. Skin becomes tense, parchment-like, and white. 3. Atrophy of one half of tongue. 4. The absence of central disease. 5. Atrophy always local. 6. Sensory and motor filaments always healthy.

Himes, whom I have already quoted, considers the change to be due to a degeneration of nerve filaments which go to certain cells, these cells being trophic. He cites Pfluger, Erb, and Vulpian in support of his theory.

Whatever we know it is so far only clinical. We can do little more than theorize. Waller has settled one point, perhaps the most important one; and Jewell has found certain cells in the posterior spinal ganglia which evidently preside over specific nutritive processes.—*Ohio Med. and Surg. Jour.*

Propylamine in Rheumatism.

This is the time of year when rheumatic troubles do most prevail, and the countless victims thereof are experimenting with the myriad remedies which have been suggested by the medical profession and by "outsiders." It would be rash to assert that a specific for rheumatism has yet been discovered, though "sure cures" are plenty enough; but propylamine, or trimethylamine, as some prefer to call it, continues to hold a prominent place among the agents contending for that therapeutical distinction.

In the *Journal* for April, 1876, we gave a brief summary of the facts concerning the use of propylamine for rheumatism, from the time when it was first thoroughly tested by Awenarius at St. Petersburg, in 1854, down to the present year, when it has been highly commended by Dr. Lee, in the *London Lancet*, and by Dr. Gaston, in the *Indiana Journal of Medicine*. The Russian physician had tried it successfully in two hundred and fifty cases, and Dr. Lee in twenty-eight; while Dr. Gaston had used it for eight years, during which period it had failed to effect a cure in only two cases, and in these it afforded decided relief. To these witnesses in its favor we might have added such eminent names as Drs. Bucheim, Dujardin-Beaumetz, Leo, Petit, and W. H. Spencer. Professor Bartholow, in his recently published "Materia Medicā and Therapeutics," says of it:

"Thus far almost the only application made of trimethylamine is in the treatment of *acute rheumatism* and *gout*. In some cases it appears to produce almost complete relief after the administration of a few doses, but generally a longer time is required (Awenarius, Dujardin-Beaumetz, Spencer, Leo). It moderates, at once, the fever and its joint-pain, and very decidedly shortens the duration of the disease. It is said to diminish the tendency to cardiac complication.

This agent, having so decided an influence on the pulse, temperature, and excretion of urea, will in the future, doubtless, be applied to the treatment of other diseases."

We cite for the benefit of our professional readers what the same authority says concerning the "antagonists and incompatibles" of the agent:

"Chemically trimethylamine is incompatible with the

mineral acids, the salts of the metals, the alkalies (chlorides), and vegetable infusions. It should always be prescribed alone, in solution, in some aromatic water. Therapeutically, it is antagonized by the stimulants, opium, belladonna, digitalis, etc."

The only makers of propylamine in this country are Messrs. Billings, Clapp & Co., of Boston. They are now manufacturing the *chloride*, and their display of this rare salt attracted much attention at Philadelphia. For therapeutical purposes, the chloride, which is specially commended by Dujardin-Beaumetz, has the advantage of being free from the disagreeable taste of propylamine. It is almost odorless, and in solution has an alkaline but not unpleasant taste. The ordinary dose is two grains every three hours.

Salicylate of Soda in Rheumatism.

By A. CLARK, M. D., Prof. of Pathology and Practical Medicine, College of Physicians and Surgeons, N. Y

My acquaintance with practice in New York hospitals began in 1834. Since that time, either at home or abroad, officially or as a volunteer, I have been a very frequent visitor at one or more of these, or similar institutions. In this period of fourty-four years the treatment of acute rheumatism has undergone many changes.

At first colchicum and actea racemosa in tincture, separately or united, were generally relied on; calomel was at the same time often prescribed. After these followed quinine in full doses; then the nitrate of potash, an ounce or more daily, dissolved in a quart or more of water. The free use of lemon-juice was next tried. So far there was reason to doubt whether any of these medicines, except colchicum, aided much in the cure; in other words, whether the disease, after running a certain course, did not terminate spontaneously. The curative effects of colchicum, in full doses, during all these changes, were often demonstrated, but serious accidents were occurring in its use, and the profession was searching for a safer treatment.

At length Dr. Fuller, of London, proposed and advocated the alkaline method. The carbonates, or convertible salts of soda and potash, were given in such quantity as to make the urine alkaline in two or three days. Then

it really seemed as if we had found a safe and speedy remedy. There were cases that resisted it, but the greater number yielded. The pain subsided on the second, third, or fourth day, the stiffness remaining a day or two longer. This result, so far as it could be obtained, was a great gain. It has been observed that the acute inflammations of the pericardium and endocardium which attend acute articular rheumatism are disposed to wait till the fifth day of the primary disease, or even a longer time. To cure the primary disease before the fifth day is, in a great majority of cases, to prevent the cardiac complications. It is true that in rare instances the cardiac inflammations have been the first manifestation of the rheumatic diathesis, the affection of the joints following one or more days after. It is equally true that the cardiac inflammations have followed that of the joints earlier than the fifth day. Still, the rule has an application sufficiently extended to illustrate one of the important advantages of the Fuller treatment.

Lately the claims of salicylic acid to the first place among the anti-rheumatics have been strongly urged. The following report of its use at Bellevue Hospital may help the profession to form a judgment regarding its virtues. It embraces all the cases received in my wards, from the 1st of April to to the 1st of June, that could be called *acute* rheumatism—eleven in all. Short abstracts from the record of these cases have been made, at my request, by Dr. Kendall and his assistants, from the Hospital Case-Books. Each is full enough to show the general effects of the medicine; but as the effect of it on the temperature and pulse is not always mentioned, I can add that its influence in lowering the fever heat and diminishing the excited pulse were as marked as its power to relieve pain; apparently because it neutralized the rheumatism position, and removed the cause of these disturbances. In the tenth case "*no impression* was made on the disease" for eight days.

The formula used in all these cases is the following:

℞	Acid salicylic	ʒiij	
	Sodæ bicarbonas	ʒij	
	Glycerine		
	Aq.	āā ℥ij	M.

Of this a tablespoonful was given every two hours for

the first day, and afterwards the same quantity six times a day. It is not claimed that this is a perfect salicylate of soda. It was prepared rather rudely by the house physician, not with reference to atomic neutralizing proportions, but by adding the soda to the suspended acid till he obtained a clear solution. It may be atomically correct or it may not; it matters little, as the combination appears to have curative power. This treatment was begun by Dr. Jacobi, and followed up by me. This report does not include any of Dr. Jacobi's cases, but the house physician informs me that his results were almost exactly parallel with those here noted. It must be added that in both classes of cases, whenever the joints were very painful, compresses, kept cool by frequent dipping in cold water, were applied to them.

Salicylic acid alone is reported to have cured rheumatism; soda alone cures it; and the formula given here might be considered a union of Fuller's with Stryker's treatment, were it not that the urine has not been noticed to be alkaline, and that the quantity usually taken, even if separated from its acid, is hardly enough to produce alkalinity.

In view of nervous symptoms, more or less alarming, that have been reported as following the use of salicylic acid, in some cases (see Dr. Caro's case, *Med. Record*, a few weeks ago), it is important to state that no such results have been noticed at the hospital in those who have taken this salicylate; indeed no unpleasant effects of any kind have been witnessed, though the quantity of the drug administered is large. I will make no comment on the cases, further than to say that in nine of the eleven the curative action of the medicine was early seen; in two cases this action was slow and incomplete.*

How to Discriminate Between Edible and Poisonous Fungi.

For some considerable time past attempts have been made to introduce and popularize the Continental fungus-eating customs; but up to the present time these attempts have not been crowned with any special degree of suc-

* We have not space to print the report of the cases—suffice it to say that the curative powers of the remedy were very marked in nearly all.

cess. In spite of our preconceived notions of French cooks and Parisian *cuisine*, it must de admitted much comes to table, and is eaten with considerable gusto abroad, that our less highly educated tastė reject as unpalatable. This is equally true of fungus-eating. A friend of ours, a keen naturalist, frequently resides for some months in the year in the south of France, and al though he enjoys French fare as well as most people, he speaks of the cooked fungi as being insipid to a degree. The method of procedure with these articles of diet seems to be that the fresh fungi, when gathered, are cut into small pieces and dried in the sun, and are preserved for winter use. Before being cooked, they undergo a series of continued washings in water, until literally all the remaining flavor is washed out of them. By this process it is extremely probable many species are rendered not only innoxious, but perfectly wholesome, which would otherwise produce most serious, if not fatal symptoms; and from being useless waste products, become material for the formation of unexceptional protoplasm. Many analyses of fungi have been published, but a real knowledge of their chemistry remains a desideratum; their ultimate composition has been more or less worked at; but our knowledge of their proximate constituents is very meagre. We learn from Dr. Badham, that in Rome the common mushroom is classed with poisonous fungi, and not allowed to be sold in the public market. It is highly improbable this would have been the case without there being some good and substantial reason for it, for Italy is a country where numerous species of fungi are largely consumed, and no fear of these plants as a class exists. It would seem as if there were something special in the climate of the districts from which the Roman market is supplied that renders the mushrooms grown in it poisonous. We know how powerful is the influence of surrounding circumstances upon flowering plants. For example, the exclusion of light from potato tubers or celery plants considerably modifies their properties. Every now and then we hear of people being poisoned (not necessarily fatally) in this country by eating mushrooms, and, when this happens, it is almost always attributed to the wrong kind having been gathered, and not to the nature of the plant being modified by special circumstances. Upon more than one occasion such cases have come under my notice personally,

in which people who knew what was a mushroom and what was not, have been made seriously ill by their repast. What the precise difference in the composition of the plant is, which causes the unpleasant effects, is at present unknown, and is one of those points which have to be worked out. As a rule, however, the wholesomeness of the mushroom is well-nigh cosmopolitan. Several years ago the late Mr. Thomas Baines, who had traveled much in Australia and Africa, told me mushrooms were always eaten when found in his expeditions. Popular credence points to the unwholesomeness of those specimens grown under trees or woods, but this is in no way substantiated by my experience. The possibility of distinguishing an edible from a poisonous fungus by bruising with a piece of gold or silver, has been repeated time after time in all kinds of books, so that it is in no way snrprising that a correspondent should ask, in a recent number of *Science Gossip*, whether there be any truth in it or not. Many an excellent mushroom has been rejected by the credulous housewife because, when rubbed with salt and a silver spoon, it has turned yellow! The vast majority of mushrooms grown in my district, upon the salt marshes and elsewhere, turn most distinctly yellow when cut or bruised; but this is simply because they are specimens of *Agaricus arvensis*, Shœff., the horse-mushroom, and not *A. campestris*, Linn. Fries, in his "Hymenomycetes Europæi," p. 279, says of *A. arvensis*, "caro alba, immutabilis;" but Mr. Berkeley, in the "English Flora," says it may be known from *A. campestris* by its almost white gills when young, and yellow stains when bruised. Most British fungologists regard this change of color as one of its specific characteristics; and thus it is really a proof of the wholesomeness of the fungus. At the present moment we do not remember any fungus which changes color in at all a similar manner; in fact, excepting one or two of the Lactarii, this particular change is a very uncommon one. *Agaricus arvensis*, the so-called horse-mushroom, is by far the most generally eaten fungus in this country; it occurs far more commonly, is much more abundant, and attains a considerably larger size than *A. campestris*, the so-called true mushroom. They are equally nice in flavor, and equally wholesome.

In several books certain general rules are given for ascertaining off hand whether a fungus may be eaten or

not; they are so absurd, however, that botanists simply smile and never think of refuting them. Who originally drew up this code I do not know; but subsequent writers have copied it more or less implicitly. It is not exactly easy to see whether these rules are intended for the discrimination of the mushroom from other fungi, or edible from poisonous species generally. Perhaps the most important of these canons is, that edible species never change color when cut or bruised. We have seen how *A. arvensis* comports itself under such conditions! But there is a variety of *A. campestris* (var. *refescens*, Berk.) which becomes brilliantly pink at the seat of injury; and this plant is one of the most savory forms of the mushroom we know. *A. rubescens*, P., assumes, as its name implies, a rufous tint, especially where it has been injured by insects. *Lactarius deliciosus*, Fr., turns from bright orange to a dirty green, and this alone is sufficient to distinguish it from all its compeers. The mere fact of a fungus changing color to blue cannot be regarded as an absolute proof of its toxic qualities, for a friend of ours has eaten *Boletus chrysenteron*, Fr., before he knew accurately *B. edulis*, Bull.; and during my noviciate I several times partook of *B. badius*, Fa., without any ill effects whatever accruing.

Another rule very commonly relied on is, that if a fungus be pleasant to the taste, and its odor not offensive, it may be eaten. But this is not only a fallacious, but an exceedingly dangerous guide. It is true some fungi are intensely acrid, and are irritant poisons; but, upon the other hand, *Lactarius deliciosus*, one of the very best of our British species, as its name implies, when eaten raw causes a very unpleasant amount of tingling of the mouth and tongue. Far more important, however, is it to remember that a fungus may have a pleasant odor and taste, and yet be most virulently poisonous. Mr. W- G. Smith was poisoned by eating less than a quarter of an ounce of *A. fertilis*, P., which had anything but a disagreeable taste. Again *A. muscarius*, L., has no acridity, neither has *A. phalloides*, Fr., or *A. Mappa*, Batsch.; and whatever may be the character of the two latter, the poisonous properties of the former are well known. It must be remembered that fungi may be irritant narcotic, or narcoto-irritant poisons, and while it is possible to recognize an irritant by the taste, a narcotic may be nearly tasteless.

There is one way, and only one, by which edible fungi can be distinguished from poisonous ones with absolute certainty, and that is by a knowledge of the individual species. As well might a code of rules be laid down for the discrimination of wholesome from poisonous fruits or vegetables, as for fungi. People do occasionally mistake aconite-roots for horseraddish, or fool's parsley for parsley proper; but we have no general rules drawn up in this case, neither do people become panic-stricken and eschew the whole race of condiments because of these unfortunate accidents. But if any misadventure occurs from eating fungi, the whole race are scouted and branded as the harbingers of death. In this country fungus-eating is reserved for the few; but it by no means follows these few are experimentalists, far from it; for the species they eat have been known to be edible, and have been eaten, by the initiated, from time immemorial, in other lands, if not in this. Like other kinds of food, they vary much in flavor, in the facility with which they can be digested, and in their nutritious qualities. Certain excellent species cannot be too widely known, and every housewife should be able to discriminate them, especially as they have all well-marked characters. Amongst these may be mentioned—*Agaricus procerus*, Scop.; *A. gambosus*, Fr.; *A. nebularis*, Batsch.; *Lactarius deliciosus*, Fr.; *Coprinus comatus*, Fr.; *Cantharellus cibarius*, Fr.; *Hydnum repradum*, L.; *Boletus edulis*, Bul.; *Lycoperdon giganteum*, Batsch.; and *Fistulina hepatica*, Fr.—*Science Gossip*.

Injecting the Male Bladder without the Aid of a Catheter, and some of its Advantages.

Dr. Hunter McGuire, Professor of Surgery in the Medical College of Virginia, contributes to the *Virginia Medical Monthly* an interesting paper on this subject, from which the following is extracted:

About the time that Dr. Zeissl, of Vienna (*Wiener Med. Woch.*), published his method of introducing fluids into the male bladder by means of an irrigator, I had under my care a case of vascular tumor of the bladder, in which the introduction of the catheter gave rise to severe chills and troublesome bleeding. The patient had

local lancinating pains about the region of the bladder, hæmaturia, very frequent and painful micturition, and all the other indications of obstructive disease of the urinary passages. The use of the soft gum catheter, either to relieve the occasional retention of urine, or for the purpose of injecting the bladder, was always followed by chills and urethral fever, and sometimes by a profuse and sudden loss of blood, which blanched and exhausted the patient.

Instead of using Zeissl's method described by Dr. Rose, of New York (*N. Y. Medical Record*), I resorted to the following simple means, which succeeded admirably: I took the common rubber-bag syringe, holding about six ounces, provided with a stopcock and a gutta-percha nozzle tapering to a fine point. The syringe is one ordinarily used to inject the bladder through a catheter, and the nozzle tapers to a point, so that it may fit any catheter. This bag is filled with warm water, care being taken to exclude all of the air, and the nozzle oiled and introduced into the urethra for an inch or an inch and a half. With the forefinger and thumb of the left hand the urethra is gently compressed around the nozzle of the syringe, the stopcock turned on so that the water may flow from the syringe into the urethra, while moderate and continued pressure is applied to the bag, and the fluid forced along the urethra into the cavity of the bladder. Care should be taken not to press the urethra too forcibly against the gutta-percha nozzle of the syringe; gentle pressure only is necessary to prevent regurgitation of the fluid, and any rough manipulation will bruise the delicate mucous membrane of the urethra. The pressure applied to the bag should be gradual and continued, the surgeon making up his mind, the first time he injects the bladder in this way, to spend a few minutes in the operation; but after both he and the patient have practiced it a few times it can be safely done more rapidly. The patient, to whose case I have referred, was in the habit of washing out his bladder twice a day by the plan described; and he did it for himself, after a little instruction, so skillfully, that he could empty the syringeful of water through the urethra into the bladder as rapidly as he could have done through an ordinary catheter. In making the injection, it is better to keep the penis parallel with the anterior abdominal wall, or pulled gently straight out from the pubis and

perpendicular to that bone, so as, in the first instance, to give the urethra a single gentle curve; or, in the second case, to make it an almost straight tube. Care should be taken not to stretch the penis too much while the injection is being made; if stretched and pulled too much, the elastic urethral tube will be closed.

All of the fluid in front of the sphincter of the bladder is ejected with some little force by the urethra as soon as the nozzle of the syringe is taken away and the forefinger and thumb removed from the urethra; and it is better to make some provision to catch this fluid and keep it from the patient's clothes. The quantity varies from one to two drachms to half an ounce or more, according to the size of the urethra, which, measured in this way, I have found to differ much, not only according to the age of the patient, but also in different adult individuals. Sometimes, when the injection has been completed, just before withdrawing the nozzle, and while it is being taken away, I remove the pressure which has been kept up upon the bag, the syringe will suck up most of the water left in the urethra. The injection can be made while the patient is in almost any position. I have used it while the man was standing up, or sitting or lying down, and when he was tied and in the position to be cut for stone. The recumbent position is, however, the best. The fluid used should be warm; if cold, it is difficult to inject, and painful.

Unless there is some more serious objection than I have yet been able to discover to the use of injections of the bladder, performed in the way just described, I am sure this will prove a valuable addition to our present means of treating vesical disorders.

In the case mentioned of malignant vascular tumor of the bladder, where the soft gum catheter gave rise to serious bleeding and to severe urethral fever, nothing gave the patient so much comfort as the use of this gum-bag syringe. He not only employed it morning and night to wash out the blood, mucus, and pus which collected there, but sometimes an injection of simple warm water stopped the pain and vesical tenesmus better than anything else.

Several times the bleeding was stopped by adding alum to the warm water, and occasionally borax and glycerine or carbolic acid was used. The mucous membrane of the urethra is much less sensitive to the influence of these and similar agents than the mucous membrane of the

bladder, and no fear of injury to the urethra need deter the surgeon from injecting the bladder in this way.

Microscopy.

Dunkirk (New York) Microscopical Society.

Regular Meeting, November 10, 1876. President Dr. Geo. E. Blackham in the chair.

E. L. Mark, Ph. D., and Miss Francena Gore, were elected members.

Prof. J. Edwards Smith, of Ashtabula, O., and Geo. W. Morehouse, Esq., of Wayland Depot, N. Y., were elected corresponding members.

The President reported progress in reference to pro gramme for the winter.

After hearing reports of committees and transacting some routine business, the society adjourned.

Special Meeting, November 24, 1876. Dr. Geo. E. Blackham, President, in the chair.

There was a large attendance of members and visitors, including representatives of the Jamestown Microscopical Society, and the Buffalo Microscopical Club.

The special business of the evening was a lecture by the president on "How we See with the Microscope," which occupied about an hour, and was a plain and simple exposition of the elementary optical principles involved in the construction and use of the instrument.

Beginning with the simple statement that light proceeds in all directions and in straight lines from a luminous body, the lecture embraced the following topics: The formation of an inverted image by rays passing through a small hole and falling upon a screen; the overlapping and confusion of images from several small holes near one another; the failure of rays passing through a large hole to form an image; various forms of lenses described and illustrated; the laws of refraction and methods of determining the refractive indices for various media; the laws of refraction and image formation for lenses; the construction and action of the optical portion of the human eye; the action of convex lenses as magni-

fiers; the limitations to the use of single lenses for this purpose; their faults of chromatic and spherical aberration, and the methods of correcting them by concaves of flint glass; the comparative spectra of crown and flint glass; the irrationality of dispersion and the secondary spectrum; diagrams of combinations actually in use in objectives of various focal lengths, including Tolles' famous "museum one-tenth"; the construction of the Huyghenian eye-piece; the action of the microscope, objective, and eye-piece, as a whole.

In conclusion, the subject of angle of aperture was briefly alluded to; the distinction between the air and immersion angles pointed out; and the possibility of an objective having an immersion angle corresponding to more than 180° in air clearly shown. The subject was treated in the most elementary manner throughout, and elaborately illustrated with large crayon drawings—many of them original, most of them drawn to scale—and the distinction between flint and crown glass preserved by giving each a special tint, which was constant throughout the series.

At the conclusion a vote of thanks was unanimously tendered the President for his instructive address.

A short time was then spent in the examination of instruments, accessories, and specimens, and the meeting adjourned. C. P. ALLING, M. D., *Secretary.*

San Francisco Microscopical Society.

The regular meeting of this Society was held on Thursday, November 2nd, with Vice- President H. C. Hyde in the chair.

As this was the first meeting since the decision to seek more commodious quarters, there was a good attendance of members. Mr. W. C. Hendrie was present as a visitor.

Mr. H. G. Hanks donated a quantity of material for mounting in the way of Cinnabar Crystals, showing double termination, from Sulphur Bank, Lake County, California. He also exhibited a specimen of beautifully crystallized Polybasite, from Austin, Nevada, which silver mineral is rarely found so interesting.

Referring to the sample of water handed to him at last

meeting, Mr. Hanks presented a paper embodying the facts ascertained in his examination, as follows:

REPORT ON A SAMPLE OF WATER FROM SAN DIEGO.

San Francisco, November 2nd, 1876.—A careful microscopic examination revealed only the lower animal forms usually present in fresh water.

There is an absence of diatoms and other vegetable forms, which is peculiar.

The water was filtered off and examined chemically. The only noticeable feature was tbe presence of an unusually large quantity of ammonia.

The dried sediment was weighed, calcined and again weighed. The loss (organic matter) was forty-three per cent., and the inorganic residue fifty-seven per cent.

The examination of this sample has but little significance without more information as to the quantity of water filterered to obtain the sample, and the conditions under which it was collected.

The presence of so large a quantity of ammonia is a subject worthy of attention. If it should be proved to result from the decomposition of organic matter, it would lead to grave doubts as to the purity of the water and its fitness for domestic use. HENRY G. HANKS.

Dr. Harkness, who is hard at work up country, sent the Society some leaves, with a fungus found on them, and also a slide, mounted by him, with spores of the same, which was accompanied by the following paper on

A WILLOW FUNGUS:

C. Mason Kinne, Esq., Secretary of the San Francisco Microscopical Society.

DEAR SIR:—I have to-day sent you, for the Society's Cabinet, a slide, No. 283, together with some willow leaves infested with a fungus. These diseased leaves are found at the present time in the greatest profusion upon the willows skirting the Sacramento River. You will observe that the fungus appears both upon the upper and under surfaces of the leaves, in bright yellow heaps (sori), which are formed by the aggregation of the spores. This fungus is the *Melampsora Salicini* (Lev.) belonging to the order *Cœmacei.* The *sori* are scattered, of a bright color in the autumn, becoming dark or nearly black in the winter. The mounted slide exhibits a section of a leaf with the spores *in situ.* These, it will be seen, are crowd-

ed into a dense, compact mass, of a bright orange color. The spores are, in many instances, globose; in others oblong, and are filled with granules, The sample I send you is but one of very many varieties of leaf-fungi to be found at the present time throughout the valleys of California.
H. W. HARKNESS.

Apropos of funguses and the many forms assumed by them in their development, which are noticeable to even the most casual observer, that of the *Phalloideæ* is, perhaps, the most marked, though rare. Mr. Kinne exhibited one found by Dr. Wythe, in Oakland, growing in the open lawn, though their usual *habitat* are woods and hedges. This fungus which is highly poisonous, was identified as *Phallus impudicus*.

The semi-monthly meeting of the Society was held in the new rooms, 126 Kearney street, Thursday evening, December 7th, Professor Wm. Ashburner in the Chair.

Mr. H. C. Hyde donated one of Zentmayer's amplifiers, for doubling the magnifying power or any combination of eye-pieces and object glasses, which was adjusted by him during the evening, and its capabilities favorably tested.

A letter was read from Mr. Charles Stodder, of Boston, giving further information relating to the use of Wenham's reflex illuminator; and Dr. F. H. Engels also addressed the Society concerning a sample of fresh water diatoms obtained by him in a stream near American Flat, Nevada, which he sent, asking for an exchange in the way of marine diatoms, etc.

JUMPING BEANS.

Mr. G. A. Raymond produced some considerable interest in a somewhat common curiosity known as Jumping Beans, which came from Alamos, Sonora, Mexico, from the fact that he had been fortunate enough to get not only the crysalis of the insect, the larva of which, within the bean, causes the motion, but the perfect insect itself. Mr. H. Edwards, who was present, stated that he had never seen the insect before, as they had failed to arrive at such perfection in his hands, and his idea that it was a coleopterous insect was dispelled, for the little winged, moth-like body was one of the lopidoptera, without question. The matter was referred to Mr. Edwards for examination and report.

Mr. Hanks was asked to report on a sample of so-called silver mud, presented by Mr. G. L. Murdock, and obtained from the silver springs lately discovered in Wasco county, Oregon. The sample gives a chemical assay of over $3000 to the ton, and it will be interesting to see what the microscope has to say about it.

Mr. Hanks presented two specimens of minerals, being gold in Hematite and Talcose rock, from the Black Hills, Wyoming, a peculiarity being noted in the extreme fineness of the gold.

CUPRO SCHEELITE.

Mr. Hanks also called attention to an interesting mineral which is only known to occur on the Pacific Coast. It resembles scheelite, in which a part of the lime is replaced by oxide of copper. Prof. Whitney, who first described it, has named it cupro scheelite. This mineral affords an example of the importance of the microscope in determinative mineralogy. When first discovered it was thought to be a mechanical mixture of scheelite with some copper mineral; but upon a careful examination under the microscope it was found to be perfectly homogenous. Subsequent discovery of crystals of cupro scheelite proved it to be a distinct and new species, as shown by the microscope. One peculiarity of this mineral is the ease with which the tungstic acid it contains can be isolated. Tungstic acid, combined with soda, forms tungstate of soda, the solution which renders cotton cloth incombustible.

It was suggested by Mr. Hanks that if tungstic acid could be produced cheaply, theatrical managers could afford to prepare the cotton upon which their scenery is painted, and thus greatly lessen the danger from fire. Cupro scheelite is said to occur in considerable quantities both in Upper and Lower California.

Mr. J. P. Moore exhibited a number of sheets covered with duplicate impressions of a drawing made from the microscope, with a new device, known as Zuccato's Papyrograph. He explained the simple process of the manipulation of the pen, ink and peculiar paper on which the drawing is made, and suggested that scientific and other papers could be rendered more valuable by this system of multiplying the drawings of objects which might be referred to in any paper read before the Society.

The next regular meeting of the Society was held Jan. 4th, with a fine attendance of members, Dr. Harkness being present during the evening.

The feature of the evening was a lecture by Dr. Gustaf Eisen, Professor of Zoology, University of Upsala, Sweden, one of the society's corresponding members, who called attention to a collection of worms of the family *enchytræidæ*, order *oligochæta*, sent to him by the eminent Arctic explorer, Professor A. E. Nordenskisold, in Sweden. The worms were collected during the last Swedish expedition to Siberia and Nova Zembla, and especially from the neighborhood of the river Jenissej. Dr. Eisen exhibited some twenty plates of drawings containing about one hundred and fifty different figures of the various organs of said worms, and illustrated his descriptions by various microscopical slides. The principal points of interest were the following:

The collection contained about eighteen species, or perhaps more, as the whole of the material was not as yet worked up. Of those species none were previously known or elsewhere described. From Germany three or four species of the same genus have been sufficiently well described to be identified, but none of them have been identified with any in the collection from Siberia.

In the course of his remarks Dr. Eisen stated that the inner organs of said worms differed very much in size and shape, and furnished the only characteristics by which the species could be distinguished from each other, as no external characters of sufficient value existed. One of the best characteristics is furnished by the size and shape of the nervous system, and especially by the foremost part of the supra œsophageal ganglion or brain. By studying the organization of the different species, one could guess at or even form an idea of the development of the whole genus. For instance, the brain of said worms must originally have consisted of only a slight swelling of the ventral ganglia or nerves, of which the two parts had not as yet grown perfectly together or been differentiated to any higher degree. In such a state of development was yet one of the exhibited species called *enchytræus primævus*. In fact, by looking at the different species, a perfect series could be seen of the different states of the development of said ganglion or brain. In *enchytræus nasutus* the differentiation was larger, as the two halves of the brain here

were wholly grown together, but still leaving some traces of their former state by being concave both in front and behind. In *enchytræus stuxbergii* the differentiation was perfect, as the brain here was convex in front. Said worm was also considered to be more highly developed and organized than any of the other species of the same genus and family. Accordingly, he separated the many species into three tribes, of which the first or lowest had the brain concave in front and behind; the second had the brain concave behind, but even in front; and again, the third or highest standing tribe had the brain convex both in front and behind.

In the worms which were hermaphrodites were found organs of generation of two kinds: male and female. The female organs consisted of, first, ovaries containing eggs in different states of development, and second, of a pair of receptacles for the spermatozoa, peculiarly shaped, and varying in size and form of different species. The ovaries were generally found in the twelfth segment, the receptacles again always in the fourth segment of the worm counted from the head or the mouth. The male organs consisted of first, testes producing the spermatozoa, and second, of a pair of efferent ducts through which the spermatozoa were carried to the outside of the body, and from there to the receptacles in the front part of the worm, where they were stored up in large quantities for future use. The testes were situated in or near the 11th or 12th segments, the efferent ducts were always found in the 11th segment.

The minute anatomy and histology of said organs was shown partly by drawings, partly by microscopical slides previously prepared. The shape and development of the receptacles for the spermatozoa, furnished good characters by which the different species could be recognized.

The system of circulation was very simple, and consisted only of a single ventral vessel uniting itself with a dorsal one in the front part of the body. The blood was either red or white, the last the most frequent. The lymphatic system was simpler yet, as here no vessels at all occurred, the lympha floating free in the perivisceral cavities of the body. The lymphatic fluid contained corpuscles resembling the blood corpuscles of the higher animals, and in each species a different form of said corpuscles existed, giving good characters for the distinction of the species.

Dr. Eisen stated that he had also found several species of the same genus *Enchytræus* in California, and called the attention of the members of the Society to the value of even the smallest contributions to a collection of California *Enchytræi*, which he was forming and soon intended to work up. The said worms were frequently found in moist earth, in flower-pots, under decayed seaweeds, etc., and were generally of a pale whitish color, and in size seldom exceeding that of the common pin. The worms could best be preserved in alcohol.

The Doctor's drawings from the microscope were works of art, and with a facile use of the blackboard during his lecture, he illustrated the subject thoroughly, and interested all present.

Fairmount Microscopical Society of Philadelphia.

Meeting held December 21, 1876. The main feature of the evening was a paper by Dr. Griffith, the President, on "Diagnosis of Blood Stains." In it reference was made to the researches of Olivier in detecting blood stains on fabrics, etc., by candle light as compared with ordinary day light.

The examination of the suspected stain was divided into chemical and microscopical. In the first part the effect of heat and reagents, and the solubility of the resulting compounds; the action of water and ammonia; nitric acid; and formation of hæmatine crystals were considered. Great stress was laid on the microscopical examination of the corpuscles, and the process of Dr. Richardson given in full. The shape of the red corpuscles in different animals was alluded to, and the article concluded with a table of the size of those of the more familiar domestic animals. The paper was illustrated by a series of typical slides.

The remainder of the evening was devoted to the examination of fungi and marine life.

Micro-Photography.

By C. Jewett, M. D.

A micro-photograph is made by first projecting an image of the object in a manner very similar to that of

ordinary solar microscope projections, and then photographing the image. The process is best conducted in a dark room, though this is by no means indispensable. By means of a plain mirror, a beam of sunlight is thrown horizontally into the room through an opening of two or three inches diameter made in the window shutter. The mirror is so mounted upon the outside of the shutter as to be adjustable from within for the purpose of controlling the direction of the beam. As the mirror requires frequent re-adjustment, a heliostat, which throws the solar pencil in a constant direction, will save much time and annoyance.

Equally good results, however, may be obtained with a mirror adjustable by hand. The light remains centered sufficiently long for the exposure, which rarely exceeds ten or fifteen seconds, and for moderate amplifications, in less than a single second.

The beam is now rendered monochromatic by passing through a cell containing a solution of ammonio-sulphate of copper.

With a saturated solution of the ammonio-sulphate, one-eighth inch in thickness, I obtain a light that shows almost no appreciable color below the blue, when examined with the spectroscope. It is obvious that an image formed with this light must be practically coincident in position with the chemical image. The ammonio-sulphate cell is mounted upon the inside surface of the shutter. The monochromatic pencil is now condensed by means of a lens from two to three inches diameter, and a focal length of about ten inches. I have used for this purpose a crossed lens (*i. e.*, a double convex lens of convexities for ordinary glass as one to six), having a diameter of two and three-fourths inches, and a focal length of ten inches. I have tried a meniscus, a plano-convex lens, and an achromatic combination from the back of a portrait tube, with nearly indifferent results.

The use of this condenser was introduced by Dr. J. J. Woodward, of the Army Medical Museum at Washington, to obviate the diffraction and interference phenomena in case of tissue preparations and certain other objects. The interposition of a ground glass, as formerly practiced, though it prevents diffraction, greatly diminishes contrast, and hence impairs the brilliancy of the picture.

The stand of the microscope, with its body horizontal,

is now placed in position. It should have an achromatic condenser mounted as usual beneath the stage. The stand should be so adjusted that the achromatic condenser will fall a little beyond the focus of the large lens. The low power objectives will be found good substitutes for the achromatic condenser proper. The objective is screwed into the end of a tube which also serves as a mounting for the large condenser and the ammonio-sulphate cell. The tube should have a telescopic joint to admit of adjusting the condensers at the proper interval.

By placing the achromatic condenser beyond the focus of the large lens, the thermal and luminous foci are separated, or the formation of a heat focus by the second condenser may be altogether prevented. All danger of injuring either object or objective by heat is thus obviated. The ammonio-sulphate cell of course absorbs the greater part of the heat when in place.

It will generally be found necessary to line the tube of the microscope with black velvet to prevent reflection of light from its sides when the eye-piece is not used. The same object may be accomplished, however, by means of a diaphragm suitably placed in the tube.

The camera, with its front removed, is placed beyond the microscope stand. The operator is now ready to project the image. The ammonio-sulphate cell may be removed and the projection made in white light upon a card-board screen placed at a convenient distance for observing the image. The best position of the achromatic condenser must now be determened by careful experiment. The screw-collar correction for thickness of covering glass may be accomplished by the aid of the image on the card-board. With an eye-piece this correction can be nearly completed by looking down the tube of the microscope, using diffused light, or that of the blue cell. Without the eye-piece the correction is, of course, farther from the point marked "uncovered." The blue cell is now replaced. The exact correction of the screw-collar may be still further tested by standing behind the camera and observing the image upon the glass focussing plate in blue light. The approximate focus is obtained by means of the fine adjustment of the microscope, the final focus by racking the focussing screen back and forth. While adjusting the focus the image should be observed with the aid of a hand magnifier of four or five diameters.

The focusing plate is best made by flowing one surface of a piece of plate glass with shellac varnish thinned with dilute alcohol. The coating should make a barely perceptible film. The ordinary ground glass is too coarse for the purpose.

The best results are obtained by using the objective, without eye-piece or amplifier, and with the sensitive plate not more than four or five feet from the stage of the microscope.

High amplifications may be made by the use of amplifier or eye-piece, or, without them, by removing the camera to the required distance from the microscope. If the enlargement be accomplished by distance, the fine focusing adjustment of the microscope is controlled by means of a band of thread running over the milled head of the fine adjustment, grooved for the purpose, and also over the end of a wooden rod. This rod extends from the microscope to the camera, and is mounted to rotate upon its axis.

Just before the exposure is made a black cloth is thrown over the microscope stage to prevent diffusion of light through the room.

If a dark room is not available, precisely the same apparatus may be mounted upon a firm table, and the camera connected with the microscope body by means of a blackened tube to exclude all extraneous light from the camera.

For oblique light work the stand may be placed in a position oblique to the luminous pencil, or any of the usual methods of oblique illumination may be employed.

The photographic processes do not differ from those of ordinary photography. Of course the chemistry and manipulations may be varied according to the character of the object and the effects desired.

Objectives for micro-photography should be of the highest quality obtainable, and should always be corrected for photography. Much vexation will be avoided by not attempting to use objectives that are not suitably corrected.

It has been erroneously supposed that the use of violet light obviates the necessity for special corrections for photography. Dr. Woodward has called attention to this error. An objective corrected as nearly as possible for white light will not give its maximum definition with violet light. The corrections for figure are mainly accom-

plished by the association of flint and crown glass lenses of opposite curvature. Now such a combination, which perfectly corrects the spherical aberration for rays of given refrangibility, will not do so for all rays of different refrangibilities. This is due to the fact that the upper portion of a flint glass spectrum is more elongated in proportion to the lower, than is true of a crown glass spectrum. Hence the ordinary corrections for spherical aberration by white light must be a sort of compromise among the requirements of the different portions of the spectrum, as they are for chromatic aberration. Obviously, therefore, the optician should complete the correction of his objectives for micro-photography under violet light, as Dr. Woodward has suggested. Objectives so corrected will be found, by white light, to be slightly under-corrected for color.

The ordinary high power immersion objectives of most makers have very nearly the corrections required for photography, especially those of Powell & Lealand, of London, and Tolles, of Boston. I have used an immersion $\frac{1}{25}$th, made by Mr. Wm. Wales, of Fort Lee, N. Y., which photographs well, though not specially corrected. By testing the defining power of an objecsive under violet light, it is possible to determine beforehand whether its corrections are suited to photographic requirements.

In many ways photography lends invaluable aid to the microscopist. In it he has a more exact, more rapid and less expensive method of publishing his discoveries than by hand drawings. By the various mechanical processes of printing, micro-photographs may be multiplied indefinitely for the illustration of printed publications, and that, too, even in the colors of the object, if desirable.

Photography affords the most accurate and expeditious method of micrometry. In illustration of this method I have prepared photographs of blood dried on a stage micrometer, several of which I present with this paper.

As the scale was photographed at the same time with the blood corpuscles, the negative itself shows the magnifying power used. The photographs were made under two different amplifications, very nearly one thousand and two thousand diameters, respectively. The objective used was a $\frac{1}{25}$th immersion, by Wales. The enlargment was obtained without eye-piece or amplifier, by distance alone. The scale was ruled in ten-thousandths

of an inch. The measurements in this method are made upon the negative, as the paper prints are subject to distortion. Corrections must be allowed for error in the scale, if any. Negatives for this purpose require to be as sharp as possible, and free from diffraction fringes. It is interesting to note, in this connection, that the average measurements of human blood corpuscles and those of the dog and the guinea pig, as determined by Dr. Woodward's photographs, are practically identical. Other animals will doubtless be added to this list by future researches.

Within certain limits photography is a valuable means of making comparative tests of microscopic objectives. Flatness of field, penetration and resolving power, may be shown in a photograph in a form that does not admit of dispute. The defining power of an objective, not specially corrected for photography, cannot, of course, be properly tested by this method.

In conclusion, I may say that micro-photography is available to any one familiar with microscopic manipulations, and possessed of a good table instrument and accessories. No special apparatus is required except such as may be constructed by the operator himself, or obtained otherwise at slight cost.

At some future time I hope to present photographs illustrating the comparative merits of microscopic objectives by different makers.

The following list comprises some of the more valuable papers that have been published upon micro-photography:

Dr. J. J. Woodward's circular on Photography of Histological Prepartions by Sunlight. 1871.

Application of Photography to Micrometry. Dr. J. J. Woodward, *Monthly Microscopical Journal* (London). September, 1876.

A paper by Dr. J. J. Woodward in *American Journal of Science and Arts*, Vol. XLII.

Practical Applications of Photography to the Microscope. Prof. O. N. Rood, of Columbia College, same journal, Vol. XXXII.—*Proc. King's Co. Med. Society.*

On page 38 will be found an interesting article by Dr. G. E. Blackham, of Dunkirk, N. Y., on the "Visibility of the Lines of Nobert's Nineteenth Band."

Wenham's Reflex Illuminator.

ASHTABULA, O.

To the Editors of the CINCINNATI MEDICAL NEWS:

SIR:—I notice in the report of the proceedings of the San Francisco Microscopical Society, printed in your November issue, that Prof. Ashburner exhibited the Wenham "Reflex" Illuminator, "which was tested for oblique illumination while resolving some test diatoms, and it was satisfactorily proven that one of the greatest advantages of the accessory was its use with ordinary thick stages, which preclude the obliquity of light necessary for high powers."

The statement above quoted is strictly true, and would naturally be "evolved" by a slight acquaintance with the instrument.

Allow me to add, that the "reflex" illuminator, used as in the instance above quoted, with Tolles' duplex lenses, has *no* "reflex" action, but becomes a *direct* illuminator; and farther, that it can *only* be thus used in conjunction with objectives having balsam angles greater than 82°; in other words—of plus 180° of air angle.

Again, while it is true that the Wenham illuminator is capable of displaying exceedingly difficult "test diatoms" by lamp light, when used with ordinary thick stages—a stage two inches thick would do no harm—almost equaling the charming results obtained by monochromatic sunlight, it should nevertheless be borne in mind that it is not *exclusively a diatom* illuminator, but, on the contrary, will prove a valuable accessory to those investigating delicate structure of any description, requiring the use of extremely oblique illumination. Used on objects which allow of the use of balsam as a mounting vehicle, the Wenham illuminator is truly a wonderfnl power, but requires the greatest delicacy in manipulation; and unfortunately this is a hundred fold more manifest when working over histological and pathological preparations.

The nature of the difficulties attending the manipulation of the Wenham illuminator are such as we might expect to encounter. The illuminator illumines the field of the microscope as the rising sun illuminates the landscape. Now, when working over slides containing exceedingly thin shells, like those of the test diatomaceæ it is per-

fectly plain sailing; on the other hand, histological specimens are almost sure to present diverse objects of palpable thickness, which, illuminated by the exceedingly oblique light, project their various shadows over the field, making chaotic confusion, and destroying almost entirely the *form* of the minor organisms; hence, it requires long practice with the illuminator to recognize the organisms under investigation.

My first attempt with the illuminator in the histological line was over a balsam slide of pavement epithelium from my own mouth. The first field as given by the illuminator reminded me of a painting depicting the arctic regions in a gale of wind! I saw scores of icebergs projecting their long black shadows over the field in inextricable confusion—any attempt to correct the objective at that stage of my experience would have been folly. I was very far from being discouraged, for it was palpable that the very power that caused the havoc in my field, would, when properly harnessed into the traces, do yeoman service. Removing the illuminator, I selected the smallest nucleated scale, and one which was far distant from the larger organisms, bringing it to the centre of the field and clamping the object carrier. Again, trying the effect of the illuminator, the result was similar to that of the initiatory trial. But now, knowing the exact locality of the scale beyond a doubt, I soon managed to identify it, and after correcting the objective, was rewarded by a display of *surface markings* shat amply repaid all costs.

The details of this and similar investigations with the Wenham illuminator I hope before long to submit to the readers of the NEWS.

Those who use the illuminator have noticed the ease with which blue, red, green, and the intermediate tints are obtained in the field. Some ten days ago it occurred to me to try unmodified sunlight with the instrument, presuming that the *blue* field due to the reflex might have the same effect as the intervening pane of blue glass which I had before used and recommended in the NEWS. The experiment was a perfect success, and I saw No. 20 of the Moller plate, not exactly as coarse "as the pickets on a fence," but more like the teeth of a fine toothed comb. The $\frac{1}{4}$th inch solid eye-piece was used and amplified, still I had oceans of spare light, nor was the definition of the objective at all taxed.

These results it seems to me are valuble, in that we can now get rid of the cupro-ammonia cell, and of the blue glass—neither of these could be successfully used receiving the solar beam through a closed window. With the Wenham illuminator I could discover no sensible difference in the definition, whether the window was open or closed. This alone, in the winter season, will be a great boon to the microscopist. J. EDWARDS SMITH.

CHEAP MICROSCOPES.—We recently stated the fact that Mr. C. A. Spencer & Sons, of Geneva, N. Y., had commenced the manufacture of microscopes for students, with the optical parts of more than ordinary quality, at very low rates. We have the pleasure now of being able to announce that the Bausch & Lomb Optical Co., of Rochester, N. Y., office in New York City, are making microscope stands of several classes, and objectives of a high grade of excellence at prices so low that every intelligent family in the country will be able, as in England, to possess a microscope. This company has associated with them the distinguished optician, Mr. E. Gundlach, whose lenses, previous to his coming to this country two or three years ago, had obtained a European reputation. This gentleman has under his charge the construction of the optical parts.

We have been afforded the opportunity of examining several of the series of object glasses of this company, made by Gundlach, viz., a three-fourths of 27° angle of aperture, one-half of 40°, one-fifth of 100°, one-eighth of 170° (the last immersion), and we feel able to assert that they are fully equal to the average first-class English objectives, while their price is not more than one-third, or quarter, as great. The one-fifth resolves the p. angulatum by central light; the one-eighth immersion showed us the longitudinal lines of s. gemma without any difficulty, the illumination being directly from a common coal oil lamp with a smoky chimney.

We really hope that we have entered upon a new era in the construction of microscopes in this country. Heretofore the cost of a good stand with efficient optical parts has been so great as to make the microscope, as an instrument for study and pleasure, almost inaccessible, except to those of considerable means. Now, however, from the

Bausch & Lomb Co., an instrument can be obtained for $50 at the most, that is quite sufficient for *all* the ordinary work of the physician and naturalist; for $32, an instrument having a range that will include a surprising amount, keeping in mind that the objectives are first-class, (we do not mean, however, that they are of that superlative fineness which belong to the very high-priced glasses of Tolles, which is exhibited under the manipulation of the skilled expert aided by his accessory apparatus), and therefore a lower power has a greater capacity than a much higher one of the so-called *second-class* glasses, which are of small angle of aperture and poorly corrected. The $32, or educational microscope, is furnished with a two inch and half inch objective. With an extra eyepiece, C, at $4, a power of over two hundred diameters could be had, which would be satisfactory for four-fifths of the wants of the every day practitioner of medicine, botanist, etc.

Heretofore, Americans have been compelled to send to Europe in order to obtain good glasses at reasonable rates, but now we would not be surprised if Europeans imported from this country, so much cheaper are these glasses of Gundlach than those of theirs of similar quality.

We hope soon to hear of other opticians doing as the Bausch & Lomb Co. are doing. We believe that the microscopes of Bausch & Lomb are for sale in this city by Ferd. Wagner; in Philadelphia by Queen & Co., and by other opticians in the other large cities.

Correspondence.

BOSTON, DEC. 21st, 1876.

MR. EDITOR.—As Mr Tolles, in your December number writes that "I make, and have made, no promise that I *I never will exhibit at any show*," I am under the necessity of saying, that just before my letter was written, Mr. Tolles said, though he has now forgotten it, "I never did and never will exhibit at any show." That may not be a *promise*, but it is the justification of what I wrote.

In your foot note, to Mr. Tolles' letter you say that I gave, in the November number, certain reasons that influenced me in not exhibiting at Philadelphia, "one of which

was his want of confidence in the competency and honesty of the judges of the exhibition." I deny that I expressed any want of confidence in their honesty; and there is not in my letter one word that authorized any such conclusion. I doubted, and now doubt, the competency of any board of judges deciding the comparative merits of the great number of first class objectives, that might have been and were expected to have been in the exhibition, in the time they were to have for studying them, and under the conditions and circumstances under which they must be studied *there*.

Finally, I have to say that the letter in the November number was not written for publication, but was a private letter to Dr. Thacker, requesting him to do a certain thing which he has not done, and was published without my prior knowledge or consent.* CHARLES STODDER.

Gleanings.

THE VIRUS OF VENEREAL SORES—ITS UNITY AND DUALITY.—The Dermatological, etc., Section of the International Congress, after hearing an able paper on the subject by Dr. F. J. Bumshad, adopted the following (*Medical News and Library*);

1. The virus of venereal sores is dual.
2. Venereal sores may be due to the inoculation of the syphilitic virus and also the inoculation of products of simple inflammation.
3. These two poisons may be inoculated simultaneously.
4. The present state of science has demonstrated that suppurating inflammatory lesions resembling chancroids may be produced on various portions of the body by inoculation with simple pus from various lesions.

SPIRIT DRINKING IN PERU.—The first census of Peru since it ceased to be a Spanish colony has just been taken: The

* The letter of Mr. Stodder, printed in November number of MEDICAL NEWS, was received in reply to some strictures made by us in consequence of certain parties not exhibiting their work at the Centennial Exhibition. Written in the formal manner in which our readers will find it, and willing that Mr. S. should be heard in defence of his action, or of any one he represented, we did not hesitate to publish the letter. We never, under any circumstances, print private letters, if we have reason to believe them private. For other matters of letter see letter.—ED.

late President, Don Manuel Pardo, was its proposer. It discloses an awful mortality from spirit drinking. According to this new numbering of the people the population amounts to 2,720,735, a fearful falling off, which is accounted for by earthquakes, diseases, civil war, and brandy. This last has, it appears, killed its tens of thousands; and it may be fairly assumed that the result of this increase of national drunkenness will be the superseding of the present race of Peruvians by the Chinese and the Mormons.—*Med. Examiner.*

THE ASPIRATOR IN STRANGULATED HERNIA.—Dr. Henry Blane reports a case of strangulated inguinal hernia, in which all attempts at reduction by taxis failed utterly until an aspirator was introduced and an ounce of serum with a large quantity of gas withdrawn. The hernia then slipped back at once into the abdomen. The case went on to entire recovery.—*Lancet.*

PRESERVATION OF SYRUPS BY SALICYLIC ACID.—Mr. Lajoux, a Paris pharmacien, has been making some experiments with the object of ascertaining the minimum quantity of salicylic acid by which the fermentation of syrups can be prevented during the summer. The syrups experimented upon were red currant, cherry, mulberry, capillaire, gentian and compound ipecacuanha. It was found necessary to add a quantity of salicylic acid equal to one-thousandth part of the weight of the sugar in the syrup. Syrups thus prepared were kept simply covered with a sheet of paper at a mean temperature of about 17° C. At the end of two months they were intact, while the same syrup, placed in the same conditions, but without salicylic acid, were completely altered.—*Ph. Jour.*

SYPHILIS—ITS TREATMENT.—The Dermatological Section of the International Medical Congress, after hearing a paper on this subject by Dr. E. L. Keyes, adopted the following conclusions (*Medical News and Library*):

1. Mercury is an antidote to the syphilitic poison, and of service in controlling all its symptoms in all, even the latest stages of the disease, its power over gummata being least, and not to be relied upon.
2. Mercury in minute doses is a tonic.
3. Iodine cures certain symptoms of syphilis, but does not prevent relapses.

4. Mercury long continued uninterruptedly so far as practical in small doses from the time of earliest eruption, constitutes the best treatment of syphilis.

Antiseptic Surgery.—Dr. John T. Hodgen (*Medical News and Library*), 1876, concludes a paper read before the International Medical Congress, as follows:

1. Putrefaction may, and does occur in solids and liquids of the body, both with and without the direct contact of germs borne in the air and water.
2. Putrefaction of the solids and liquids of an open wound may, in many cases, be prevented if the contact of living germs with the surface is not permitted, or by destroying their vitality after contact with it.
3. It is possible that the living solids and liquids of the body may be so altered that they shall not furnish the conditions necessary to putrefaction.
4. Practically the conditions to be met in preventing putrefaction are so difficult, that in many cases it is impossible to comply with them. Yet, even partial success is eminently worthy of our best efforts.

Intestinal Secretion and Movement.—Dr. McKendrick (*British Medical Journal*, September 23, 1876), in behalf of a committee appointed to investigate the above problem, reported the following conclusions:

1. Application of various soda and potash salts to the intestinal mucous membrane produces a more or less profuse secretion—that caused by sulphate of magnesia, acetate of potash, sulphate of soda, and tartrate of potash and soda being more abundant.
2. The presence in the intestines or in the blood of atropia, morphia, chloral, etc., does not prevent the absorption of sulphate of magnesia.
3. The splanchic nerves are, as usually admitted, the vaso motor nerves of the intestines, but either have no centrifugal fibres to their muscular coats, or affect them only indirectly by diminishing their supply of blood.
4. The secretory nerves of the intestines have the small ganglia of the solar and superior mesenteric plexuses for their centres, and this secretion is unaffected by the splanchnics, the vagi or the dorso lumbar parts of the cord.
5. Destruction of the lumbar part of the cord, after extirpation of the solar plexus, produces hemorrhage or

hyperæmia of the intestinal mucous membrane, which is absent after division of the splanchnics, destruction of the semi-lunar ganglia and solar plexus, or division of the mesenteric nerves themselves.

6. The splanchnics are the afferent nerves for peristalsis of the intestines, the efferent stimulous probably reaching the inter-parietal ganglia through the lumbar cord and abdominal sympathetic, the former effect being inhibitory, and the latter stimulating these ganglia.

Treatment of Stammering.—One of our dailies contains a letter (*Canada Lancet*) which appears trustworthy, written by a gentleman who stammered from childhood almost up to manhood, and who gives a very simple remedy for the misfortune: "Go into a room were you will be quiet and alone, get some book that will interest, but not excite you, and sit down and read two hours aloud to yourself, keeping your teeth together. Do the same thing every two or three days, or once a week if very tiresome, always taking care to read slowly and distinctly, moving the lips but not the teeth. Then, when conversing with others, try to speak as slowly and distinctly as possible. and make up your mind that you will not stammer. I tried this remedy, not having much faith in it, I must confess, but willing to do almost anything to cure myself of such an annoying difficulty. I read for two hours aloud, with my teeth together. The first result was to make my tongue and jaws ache, that is, while I was reading, and the next to make me feel as if something had loosened my talking apparatus, for I could speak with less difficulty immediately. The change was so great that every one who knew me remarked it. I repeated the remedy every five or six days for a month, and then at longer intervals until cured."

The St. Petersburg Lying-In Asylums.—In a recent inaugural dissertation, Dr. Stoltz gives an account of the working of the ten Lying-in Asylums that have been recently established at St. Petersburg. Established on account of the danger that exists in the agglomeration of puerperal women, the asylums have only three or four beds in each; and although many of these are placed in very insalubrious districts, a six years' experience has proved their great utility. Of the 7,907 women who have been delivered in them, only eighty, or 1.1 per cent., have

died, while at the old hospitals the mortality has been 3.6 per cent.; so that the lives of 200 women have been saved which would have been lost in the old establishments. Besides their great convenience in being distributed over the city, the cost of these asylums is much less than that of the hospitals, the expense of each patient being in the latter from nineteen to twenty-three roubles, while in the asylums it is only twelve roubles.—*St. Petersburg Med. Woch.*

Anomalous Refraction of the Eyes and Nervous Diseases.—In a paper in the *New York Medical Record* of September 2nd, entitled "Some Remarks upon the Relations between Anomalous Refraction of the Eyes and certain Functional Nervous Diseases," Dr. George Stevens, of Albany, N. Y., pursues the subject, under the title of "A New Theory of Chorea." In that paper he advanced the proposition that not only was chorea the result of anomalous refraction, but that beyond any and all other causes combined, other functional diseases are dependent on refractive lesions.

Note.—How does he explain the existence of congenital chorea?—E. S. G.

On the Absorption of Iodine by the Cutaneous Surface in Children.—In an interesting article on this subject (*L'Union Medicale*,) Dr. Jules Simon and M. Paul Regnard, of Paris, state that some little girls afflicted with ringworm of the scalp were treated in a very simple manner, by swabbing the whole of the head with a mixture composed of equal parts of iodine and glycerine, and the cases were improving, when, in a month, one of the children was taken ill with symptoms of iodine poisoning. The urine being examined, was found to contain iodine, and a similar examination being made in the case of the other children, the results were the same. All the children, therefore, had absorbed iodine, but only the first mentioned had presented any general symptoms of iodism. In half the cases, too, the urine contained albumen. Experiments were now made in a methodical manner, and the results are given in the paper now under notice. Care was, of course, taken to employ appropriate tests for the iodine, and care was also taken to eliminate albumen, as far as possible, from the food consumed. The general results were, that in fourteen children treated by the ex

ternal use of iodine, all presented this substance in their urine, and the quantity found varied according as the applications to the scalp were diminished or suspended. When the surface covered with the application did not exceed the diameter of a five franc piece, the iodine entered but little or not at all into the urine, and albumen was never found. The absorption by the skin therefore requires, in order to be appreciated in a short time by the examination of the urine, rather large surfaces of application; but it is suggested that smaller quantities might perhaps be detected in the saliva than they would be in the urine. The conclusions drawn are, that iodine applied to skin passes readily into the blood in children, these being the subjects on which the experiments were made; the absorption in one of the cases was twice followed by symptoms of iodism; and in half the cases there was albuminuria, sometimes of a marked character.

Translations.

By Wm. A, Rotaacker.

THE RELATION OF THE MOTOR DISTURBANCES IN GENERAL PARALYSIS TO CERTAIN LESIONS FOUND IN THE CORTICAL PORTION OF THE FRONTO-PARIETAL CONVOLUTIONS.

At the session of the Paris Academy of Medicine, on Dec. 5th., Dr. Foville read a paper on the above subject. Two points, he said, distinguish general paralysis, or the paralysis of the insane, from other forms of mental alienation and other cerebral diseases. One of these is symptomatic. It is the existence of those general disturbances of motility which has given to the disease the name of general paralysis. The other is anatomical, and consists in an alteration of the gray cortical substance which manifests itself principally by an adhesion of the thickened meninges to, and by plastic deposits in, the most superficial portions of the convolutions, and by a softening of the gray substance subjacent. On attempting to elevate the meninges, they do not become detached alone, but drag with them a portion of the cortical substance, leaving, in the parts thus denuded, a veritable ulceration.

Up to the present time no relation has been established between the constant disorders of motility and the con-

stant alteration on the surface of the fronto-parietal convolutions. M. Foville believes he has determined this relation by the following points:

1. The general paralysis of the insane has two pathognomonic characters: *a*. In a symptomatic point of view, the constant motor disturbances; *b*. In an anatomical point of view, the constant alterations in the cortical portion of the fronto-parietal convolutions.

2. The more recent authors are inclined to attribute the troubles of motility in general paralysis to histological changes, more or less manifest about the bulb and the medulla. There has therefore never been established any relation of cause and effect between the constant symptomatic manifestations and the equally constant anatomical changes.

3. The discovery by Hitzig and Ferrier of a region excitable and motor on the surface of the convolutions of the middle part of the cerebral hemispheres determines this relation.

4. The existence in the excitable region of these convolutions of cortical motor centres distinct for the movements of the upper extremity, the lower extremity, of the neck, the head, the tongue, the jaws, of the face, the lips, the globe of the eye and the eye-lids, enables us to give an exact account of the localization of the ataxias, the convulsions, the contractions, and the paralysis of one or another of these parts in general parlysis.

5. An excitation of these motor centres, producing the hyperæmia of the commencement of the disease, the passive congestion of the next stage, and the final sclerosis in the period of decline, explains the progressive disturbances of motility, such as the embarrassment of speech, the fibrillary spasms of the lips and cheeks, the ataxia and dissociation of movements in the extremities, the grinding of the teeth, the contraction or dilatation of the pupil, the convulsions, limited to one muscle, or to a small group of muscles, the unilateral epileptiform attacks, the partial or transient hemiplegia, the persistent contractions, and finally the paralysis, more or less complete.

6. *Summary.*—In general paralysis, the lesions of the cortex of the fronto-parietal convolutions are the direct cause of the disturbances of motility. On the localization and extent of these lesions depend the localization and extent of the spasms and the paralysis.—*Gazette Hebd. de Med. No. 49.*

THE ENLARGEMENT OF THE ANTERIOR LIP OF THE UTERUS AN IMPEDIMENT IN LABOR.

(*Bayerœrztl, Intell. Bl., No. 15, 1876*).—Dr. Lochner details three cases.

CASE I. Age 30, multipara. During the labor, a tumor about the size of an apple presented itself before the head of the child. Notwithstanding vigorous pains, the head made no progress. The tumor was recognized as the anterior lip of the uterus. An attempt was made to replace it; this failing, the forceps was used, and an apparently dead child delivered. The child was restored. The mother suffered no ill consequences from the operation.

CASE 2. Age 30, multipara. The patient had been delivered several times by turning, on account of a contraction of the pelvis. In the present labor, turning could not be accomplished by reason of the low position of the head. The anterior lip was greatly swollen; it could not be pushed up to its place. The forceps was used, and a living child delivered. The anterior lip was torn almost entirely away. The woman had no bad results. The anterior lip was afterwards found hanging in the vagina.

CASE 3. Age 33, multipara. The swollen anterior lip was obstructing the labor. The waters had been discharged, and the head did not come down, although the pains were energetic. In the intervals between pains the anterior lip was pushed up over the head. After this, delivery was easily effected with the forceps.

It seems from the above cases, that the application of the forceps is not so serious a proceedure as is claimed by Huber and Michælis. The tearing of the anterior lip does not appear to produce any dangerous consequences to the mother. If the anterior lip cannot be replaced, the forceps should be used. HOEHNE—*Schmidt's Yahrbucher, 1876, No. 10.*

IMPLICATION OF THE SYMPATHETIC IN CEREBRAL PARALYSIS.

(*Virchow's Archiv*, 68, B'd. I. H.)—Prof. Nothnagel, observed in a case of right hemiplegia of cerebral origin (paralysis of extremities and face), the right optic fissure narrower than the left; the outer canthus of the right eye somewhat lower than that of the left; the right pupil smaller than the left, and not dilatable by atropine; the

right globe deeper in the orbit than the left; the right cheek and the right ear warmer than the left. From the right nostril there flowed continuously a thin secretion; from the outer canthus of the right eye there was a flow of tears, and the saliva escaped from the right angle of the mouth. The right optic papilla was somewhat obscured, rather gray in color, and the normal excavation was not distinct. In short, there was a series of phenomena resembling closely those which follow the experimental section of the cervical sympathetic.

The case shows that in cerebral affections the sympathetic filaments to the head and face may be involved. This fact with regard to the nerves of the vessels of the extremities has long been known.—*Wiener Med. Woch., No. 48.*

ON FLUXION, OR SIMPLE PULMONARY CONGESTION IN CHILDREN.

Hirne. The memoir of M. Hirne is very elaborate in all its details, and is based upon a number of observations made with much care. He arrives at the following conclusions:

1. Fluxion or pulmonary congestion exists as an essential disease in children.
2. It is characterized by its sudden advent, by a rapid increase in the pulse rate, and a proportionate rise in temperature, by the short duration of the fever, and the rapid descent of the temperature.
3. There is a great variety and rapid alteration in the signs perceived on physical examination.
4. The termination is always favorable; at least it was so in the cases observed.
5. The treatment—emetics, revulsives, and digitalis—is only palliative. The recovery is often accomplished without medication.—*Gazette Hebdom. No. 49.*

FUNCTIONS OF THE CEREBELLUM.

(*Virchow's Archiv, Bd. 68. 1 II*).—Prof. Nothnagel after extensive experiments has arrived at these results:

1. The cerebellum has a motor function, as is proven by the movements excited by an injury or an irritation applied.
2. The two halves of the cerebellum are functionally, and it is probable anatomically, in close connection with each other.
3. Destruction of one or of both hemispheres, or of the

anterior upper portion of the vermiform process, is not necessarily followed by disturbances of co-ordination. Mechanical irritation of these parts produces motor appearances.

4. Destruction of those portions which when irritated produce motor manifestations does not bring about paralysis.

5. Disturbances of co-ordination only occur after injuries extending deep into the substance of the hemispheres and the vermiform process.—*Wien. Med. Woch., No. 48.*

REMEDY FOR CROUP.

(*Dawosky Heilbronner Mem., 1876*).—This proceeding was first recommended thirty years ago, but seems to have been forgotten: *i. e.*, place the arms of the sick child in a vessel containing hot water, let the child bend over the vessel, then throw a cloth over its head so that it will cover the vessel at the same time; the child should then breathe the warm vapor. The water must be as hot as can be borne without scalding. This position should be maintained until the arms are red and swollen. The child should then be dried and placed in bed. Generally a heavy perspiration will take place and the croupy cough will disappear. This proceedure should be resorted to on the first appearance of the cough; after false membranes have formed it is of little use. It has been very successful in the hands of the author.—*Centralblatt, No. 48.*

Book Notices.

Compendium of Histology—Twenty-Four Lectures. By Heinrich Frey, Professor. Translated from the German by permission of the author; illustrated by 208 engravings on wood. 8 vo. pp. 274. New York: G. P. Putnam's Sons. Cincinnati: R. Clarke & Co.

This work is, as it purports to be, a brief compend of the most essential facts for students and practicing physicians.

Dr. Frey is, as our readers are aware, the author of a large work on histology, but such a work, as well as the one of Stricker, although most excellent ones, are too extensive and minute in their details for the student or

for the physician, who has only the time to give to the main facts; such need only a compend, and not an exhaustive treatise. The present work is designed to fill the want.

With a good student's microscope, like Spencer's, and some accessory apparatus—a sharp razor, scissors, forceps, needles, chemical reagents, magnifying glass, etc., the student with this book in hand is prepared to enter upon the study of animal histology, and as he proceeds will be able to verify the different statements found in it.

We have no doubt this work will become popular with students, so well suited is it to their wants. The language is plain and concise, and there will be no difficulty in understanding the facts as stated.

TRANSACTIONS OF THE THIRTY-FIRST ANNUAL MEETING OF THE OHIO STATE MEDICAL SOCIETY. Held at Put-in-Bay, June 20–27, 1876.

This work contains the proceedings of the last meeting of the State Society, and the papers read by the members. It is a very creditable volume indeed. A number of the papers are valuable and interesting.

PRINCIPLES OF HUMAN PHYSIOLOGY. By WILLIAM B. CARPENTER, M. D., F. R. S., F. G. S., F. L. S., etc. Edited by HENRY POWER, M. B., London, F. R. C. S. A new American from the 8th and enlarged English edition, with notes and additions by FRANCIS G. SMITH, M. D. 8 vo. pp. 1083. Philadelphia: Henry C. Lea. Cincinnati: R. Clarke & Co.

"Carpenter's Physiology" needs no commendation. It has long been considered the most learned work on physiology in the English language, and deservedly so. We presume that there is not an educated physician in this country or in Europe who does not have it on his library shelves

The present edition of this work will be found to embody the principal results of the physiological investigations that have been undertaken during the last four or five years. The extraordinary developments which both normal and pathological histology and histo-chemistry have undergone by means of improvements in the construction of the microscope, and by the introduction of

new means of investigation, as by Stricker's warmed stage, the application of various agents to harden and stain the tissues, and of new methods of obtaining sections, as by the freezing microtome of Rutherford, by imbedding in paraffin, wax, gum, and pitch, have all been noted as far as possible, as well as the progress in other respects.

The work must continue to hold for some time the leading rank among works on physiology.

Death of Dr. M. B. Graff.

This gentleman, the Demonstrator of Anatomy of the Cincinnati College of Medicine and Surgery, died suddenly on the morning of January 9th. He retired to bed the previous evening apparently in good health, but was unable to be aroused in the morning. In this condition he expired.

At a called meeting of the Faculty the following action was taken:

"Dr. M. B. Graff, a graduate of the Cincinnati College of Medicine and Surgery, and for several years the Demonstrator of Anatomy in that institution, died suddenly at his residence January 9th. Dr. Graff, although a young man, had attained quite a high position in the profession, and an influential standing in the community, in consequence of his acquirements in medical science and devotion to his profession.

"The Faculty of the Cincinnati College of Medicine and Surgery, therefore, in view of the official relationship with deceased—

"*Resolved*, That in the death of Dr. M. B. Graff our college has lost a most promising alumnus, who, had he lived, would have reflected great honor upon his Alma Mater, the Faculty an esteemed and efficient co-instructor, the profession an honored brother, and the community a useful member.

"*Resolved*, That we deeply sympathize with his bereaved family in their affliction, and extend to them our heartfelt condolence.

"*Resolved*, That the Faculty attend the funeral of the deceased in a body; that these resolutions be published

in the daily press and medical journals of the city, and that a copy of the same be transmitted to the family of the deceased.. By order of the Faculty,

"J. A. THACKER, M. D., *Chairman.*
"J. TRUSH, M. D.,
"D. D. BRAMBLE, M. D.,
Cincinnati, Jan. 10, 1877. *Committee.*"

On learning of his death, the students of the Cincinnati College of Medicine and Surgery passed the following tribute of respect:

"'Professor Graff is dead.' Scarcely had the sound of his retreating footsteps died away, ere a gloom of sadness was thorwn like a pall over our college, by the announcement of his death. The circle is broken; a chair vacant; and we, in our sorrow, can only sit and wonder that one, who so recently appeared before us in perfect health, should be so suddenly called away. In his death, the class mourn the loss of a kind instructor, a genial companion, and a true friend. We desire to extend to the relatives and friends of the deceased our sincere and heartfelt sympathies; and while we ever hold his memory sacred, we will strive to imitate his many noble qualities of mind and heart.

"G. W. MASTON,
"WILLIAM T. CLUTE,
"R. M. JOHNSON,
"J. W. WILLIAMS,
"ISAAC R. SWIGART,
Committee."

Editorial.

VOLUME X.—The present number of the MEDICAL NEWS begins the Tenth Volume. As announced in the December number the NEWS comes out enlarged and otherwise improved—this issue containing 80 pages against 48 pages the number previously issued.

Nine years ago the same gentlemen who now form the Association began the publication of the MEDICAL NEWS. At that time it contained but two forms, or 32 pages, at one dollar a year. Modestly it went forth seeking public favor, but scarcely daring to expect to gain sufficient sup-

port to become permanently established, considering the large number of medical journals published, many of them large, a long time established, and of high merit. But hopes, a long time wavering as to final results, have become fully realized, and for a considerable time the MEDICAL NEWS has taken its place among the well established journals of the country, with a list of subscribers, second to none in its size, and three or four times as large as that of four-fifths.

The success of the MEDICAL NEWS is largely owing to its independence, and to its possessing features quite distinctive. Had it started out in the old ruts and kept along in them, printing dry and trashy articles on typhoid fever, pneumonia, rheumatism, etc., with recipes which this and that doctor had thought he had found beneficial in their treatment, we have no doubt it would long ago have ceased to exist and passed out of memory, for there were already sufficient journals devoted to that kind of medical journalism. On the contrary, the MEDICAL NEWS, from the outset, has devoted much of its space to the departments collateral to those of medicine, such as physiology, biology, psychology, histology, microscopy, etc., furnishing information that could not be had from other medical journals, and thus really supplying a want. The consequence has been that the most eminent physicians of the United States have become subscribers to it, as well as many scientists of other professions; and it has a standing both in this country and Europe.

A certain eminent English physician, in speaking to a class of medical students, said: "You are all brought into direct contact with the facts of Nature, face to face with them, from the beginning of your course; step by step you advance in the practice of observation and reflection, from more simple to more complex phenomena, and so you learn to make the order of your ideas conform gradually to the order of Nature." From the simplest cells the most complex organisms are constructed, and in the laws which govern them are to be deduced the laws which govern the being. Physiology naturally precedes the study of pathology, and the study of pathology that of therapeutics. Only as we advance in the study of the first can we expect our knowledge of the latter to be increased; and in proportion as we thus progress, conformably to the natural order, will the practice of medicine become

a science, and raised above that of a mere empirical art, having no scientific basis on which to found the application of remedies to disease.

In this country all of the medical journals are devoted pretty much exclusively to the treatment of diseases without special reference to scientific principles, as if medicine consisted wholly in prescribing or discovering recipes of "what is good" for this or that ailment. Of course, until medicine has attained a higher scientific standard than it has, a due proportion of this sort of journalism is necessary, but we can not expect much progress if it is to be made up of it exclusively. A thoroughly cultivated physician wants to know something more than that opium will produce sleep; or tartar emetic will bring about emesis; or copaiva will cure gonorrhea. He feels that something more is necessary in order to have an intelligent appreciation of disease, and a proper conception of its treatment. Sometimes the effects do not follow, and then with his limited knowledge he would be at sea.

But, to be brief: The MEDICAL NEWS will continue to be largly devoted to physiology, pathology, histology, and those departments collateral to medicine. But while this is done, the every-day practitioner will have furnished him the latest information as to the most approved remedies for treating the diseases with which he comes in daily contact. We propose that the MEDICAL NEWS shall teach both the principles and art of healing.

As the microscope is coming to be recognized more and more as an essential instrument in the hands of the physician—as much of a necessity in the study of disease as the clinical thermometer—more or less space will be devoted to microscopy, *i. e.*, to the study of those structures—anatomical and pathological—that cannot be studied by the naked eye. This will be a department that will be interesting not to a few only, but to every physician, for it is a matter of interest to every practitioner to know whether the sputa of his patient contains tuberculous matter, the urine renal casts or blood, a discharge cancerous cells, etc., etc., etc. A number of eminent microscopists—histologists and pathologists— have promised to contribute to this department, and numerous microscopical societies from time to time will send us their proceedings.

We will here state that the active editor has been sick

during a large part of the time since the issue of the December number, and in whatever the present number lacks in being up to the standard we have set, due forbearance must be exercised.

MEMORIAL.—To the Senate and House of Delegates of the State of West Virginia, now in legislative session assembled:

The American Medical Association, at its annual meeting, held at Philadelphia, June, 1876, appointed a special committee, members of said Association in the State of West Virginia, to memorialize your honorable bodies on the subject of the establishment of a State Board of Health. Prolonged argument in relation to the subject is deemed unnecessary, but the undersigned, in the name of the Association, and in compliance with its earnest request to use its best efforts in this behalf, would simply lay before your honorable bodies the following facts:

A numerous population is of the highest importance to the strength, wealth and welfare of a State. To a State a loss of life is a loss of wealth. Statistics show that more than one-eighth of the whole number of deaths in any community are from *preventable diseases.*

The origin and spread of certain diseases, among which cholera, typhoid fever, diphtheria, and scarlatina may be enumerated, are influenced, in any community, directly by the hygienic condition of the population.

Arouse the whole community to a sense of the necessity for care about everything connected with the various homesteads, and thereby prevent the operation of causes tending to produce ill-health, and those fearful epidemics will cease to be originated or propagated.

To establish such a Board would be virtually to increase our population, reduce our taxation, and augment our wealth, prosperity and greatness.

Twelve States have seen the wisdom of such Boards, and are now reaping the golden fruits matured from such efforts. That we may keep pace with our sister States we must call to our aid sanitary knowledge.

Competent men, members of Legislatures, who have been, as such, desirous of great economy in disbursing the public funds, have, from their own experience, acknowledged that funds so voted by the State authorities for such support have been more than repaid by the re-

forms brought about in various villages and towns, which reforms have mitigated or prevented diseases previously always existing at certain periods of the year.

We respectfully ask that your honorable bodies may speedily enact a law which shall make provisions for the establishment of a State Board of Health, and thereby provide, for yourselves and for your constituents, clean air, clean water, clean food, clean soil, clean houses—in other words, *remove the conditions favorable to the existence and spread of disease.*

And we will ever pray.

John C. Hupp, M. D., Chairman, Wheeling.
E. H. Moore, M. D., Wellsburg.
J. M. Lazzell, M. D., Fairmount.

Committee of the American Medical Association for the State of West Virginia.

Causes of Putrefaction and Fermentation.—A year or two ago, Dr. J. Dougall, of Glasgow, at the Social Science Congress, held in that city, announced, as the result of investigations made by himself, that the presence of an alkali determines putrefaction in organic matter, while the presence of an acid determines fermentative changes. The same line of inquiry has been taken up since by Dr. John Day, of Victoria, Australia, who finds in Dougall's discovery an explanation of the presence in hospitals of septic poisons, giving rise to pyæmia, erysipelas, and puerperal fever. The *Sanitary Journal*, of Toronto, has a paper by Dr. Day upon this subject, the purport of which may be briefly stated as follows: Hospitals, as usually constructed, have alkaline ceilings, alkaline walls, alkaline floors (owing to the use of soap in cleansing them). Experience has shown that pyæmia is of extremely infrequent occurrence in temporary hospitals consisting of rough wooden sheds. The incessant generation of peroxide of hydrogen by the turpentine of the wood doubtless prevents putrefactive changes, but, as turpentine always gives an acid reaction, this circumstance must greatly increase the disinfecting power of the peroxide, by determining the fermentative instead of the putrefactive decomposition of the pus-cells and other organic matter given off from the patient. Dr. Day proposes the following method of counteracting the evils of hospital

life: The boards of the floor he would first cover with a coat consisting of equal parts of gasoline and boiled linseed-oil, to which is added a little benzoic acid. When dry, the surface is polished with a paste of beeswax, turpentine, and benzoic acid. Boards so prepared are, in his opinion, rendered permanently disinfectant. The walls and ceilings might be rubbed smooth, and coated with a varnish of paraffine or oil of turpentine; or, better still, they might be coated with salicate paint, then rubbed down and varnished. For the purpose of keeping the air pure, and destroying the pus-cells floating in it, he recommends, in addition to ventilation, the use of certain volatile substances, such as gasoline, benzine, and eucalyptus oil. The furniture should be occastonally brushed over with either gasoline or benzine, in which a little benzoic acid has been dissolved.

In our December issue we were in error in stating that the $\frac{1}{10}$ immersion objective therein described was made by Mr. Chas. A. Spenber. We learn that it was the work of Herbert R. Spencer, the son, who, with his father, and brother-in-law, Maj. O. T. May, is engaged in the manufacture of microscopes, under the firm name of Chas. A. Spencer & Sons, in connection with the Geneva Optical Co. The immediate work of making these fine lenses is done by Mr. Herbert R. Spencer. The glass alluded to is a three-system lens, and is of 170° angle of aperture, instead of 160° as stated.

Mr. W. H. Wamsley.—We had the pleasure recently of receiving a call from this gentleman, who is of the firm of James W. Queen & Co., of Philadelphia, the most extensive manufacturers and sellers of optical merchandise in the U. S. Mr. W. had with him a number of fine microscopes and lenses.

Messrs. J. W. Q. & Co. make an excellent student's stand, both monocular and binocular, and Dr. O. W. Holmes' class microscope. They are also agents for this country of Beck's fine microscopes and objectives.

Mr. Wamsley himself holds a leading position as a microscopist, having made microscopy a study for many years. His mountings of objects are familiar with many of our subscribers.

Personal.—Dr. H. T. Dunbar is to be addressed at Concord Station, Pa.; Dr. J. H. Criswell, at Caledonia, O.; Dr. C. S. Cope, at 41 Virginia Street, Wheeling, W. Va., instead of Cope, O.; Dr. F. W. Courtney, Carencro, Louisiana, and not Pennsylvania, as erroneously stated in a previous number; Dr. M. C. Hoag, Santa Cruz, California, instead of Bakersfields, California.

Obituary.—Alexander Bain, eminent as a writer on subjects connected with mental philosophy, is dead. He was born at Aberdeen in 1818, and while still young, taught classes in Marischol College, from which he graduated. He was afterward Professor of Logic in the University of Aberdeen, an Examiner of the London University, and the author of various text books and treaties on psychological subjects. His special forte was the attempting to trace out the border line and connecting links of psychology and physiology.

Dr. J. M. Toner, of Washington, D. C., has published a little work, pamphlet form, on the burning and other accidents which have befallen theaters and other public buildings. A list of these from the earliest times is given. The work will be found to be of value and interest, containing many suggestions which have resulted from his observations.

American Bi-Weekly.—Prof. E. S. Gaillard has changed his weekly publication to a bi-weekly, and in accordance has changed the name from the "American Medical Weekly" to the "American Medical Bi-Weekly." It is of quarto size, double columns, printed on fine tinted paper, and presents a very handsome appearance. Published at Louisville, at $3.00 a year.

In order to obtain position upon the staff of the Cincinnati Hospital, high scientiffic attainments do not weigh much, neither does moral worth or religion, but the candidate must belong to a "pious ring," represented in the Board of Trustees by Dr. David Judkins, Judge M. B. Hagans, the inebriate Mayor, and by a certain obese gentleman who has more development of his colon than of his brains.

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Original Contributions.

Clinics Cincinnati College of Medicine and Surgery.

Clinical Lecture on Diseases of Women.

By Prof. A. J. MILES, M. D.

Reported by THEO. WITTKAMP, M. D., Dispensary Physician.

CHRONIC ENDO-CERVICITIS.

GENTLEMEN,—I present for your consideration to-day the case of Mrs. A. S., age 35 years; American; married; mother of three children; miscarried eighteen months ago, since which time she has not been well.

She complains of pain in her back, lower part of her bowels, and throughout the pelvis, and extending down her thighs. Tongue furred, bowels regular, appetite poor, and impaired nutrition. No abnormal condition of lungs or heart, although she has palpitation of the heart and rapid respiration from the least over exertion, and especially on going up stairs. Urine normal in quantity and appearance, but micturition is often frequent and painful after prolonged walks, or when she is much on her feet. Menstruation is excessive, and often continuing five or six days; the first two days of the period suffering very much pain, and usually confined to bed.

Leucorrhea is more or less present, and variable in character. As often as once or twice a week the discharge is thick and tenaceous, and passes off in long stringy masses or lumps, as much in quantity as the half of the white of an egg, and much the same in character, but usually more opaque, and often streaked with blood. The patient is anæmic, emaciated, and has that worried ex-

pression indicative of great physical suffering and mental distress.

Physical examination reveals abdominal tenderness over the left ovarian region, but no abdominal enlargement.

By digital examination the cervix-uteri is found low in the vagina, and the fundus retro-verted; the cervix near twice the normal size; the os patulous, the posterior lip granular to touch.

Examination by sound revealed the uterus normal in length and shape, with the normal contractility of the internal os. Through the speculum the cervix was found swollen to near twice its normal size; the posterior lip in a condition of granular degeneration, the os patulous and filled with a plug of thick tenacious mucus, which was difficult to remove.

This case, gentleman, is a well marked case of chronic inflammation of the lining membrane of the uterus, extending from the os-internum to the os-externum, and also over the vaginal portion of the cervix.

This disease is sometimes called cervical catarrh, cervical leucorrhea, and chronic cervical endometritis. This is one of the most frequent diseases that anywhere affects the female genital system.

The *causes* of this affection are numerous, the most frequent may be enumerated as acute metritis, subinvolution, frequent parturition, prolonged lactation, the use of intra-uterine pessaries, abortions, and efforts at production of abortion and prevention of conception, excessive coition, vaginitis, displacement of the uterus, cervical fissures, obstructive dysmenorrhea, and cervical polypi. Besides these there are many conditions of the system resulting in debility that predispose the system to this disease.

The *pathological* lesion in chronic endo-cervicitis is not only alteration of the lining membrane of the cervix, but the glands of Naboth become involved, and often the deeper structures. The mucous membrane forming the folds or rugæ is deprived of its epithelium, and abrasions frequently exist in this situation. The villi become destroyed, or hypertrophied, giving to the surface a granular appearance. Inflammation of the muciparous follicles of the cervix occurs, giving rise to follicular ulceration. There is eversion of the os and lower portion of the canal, and a discharge of thick tenacious alkaline mucus.

This condition of the os and cervix you have seen in this patient.

The *active symptoms* of this disease are a long time being developed. The constitution of the patient will often show signs of becoming implicated before the local symptoms are so troublesome as to cause the patient to seek relief.

One of the first symptoms complained of is leucorrhea, accompanied by pain or weakness in the back and loins after exertion. Irregular menstruation, both in reference to time and quantity, will occur, and often dysmenorrhea. The leucorrheal discharge is thick and tenacious, resembling boiled starch or the white of an egg, and is alkaline in reaction. After the disease has existed for some time the general health begins to fail, the appetite is lost, or the digestion is enfeebled, and the patient becomes weak, thin, pale, nervous, and often hysterical. Nausea and vomiting sometimes supervenes. Pain on sexual intercourse is apt to occur, especially when the uterus is prolapsed.

By *physical examination* the os is generally found enlarged, and often roughened by granular degeneration. Specular examination will most always find the os filled with the characteristic thick tenacious discharge.

The *duration* of chronic endo-cervicitis is variable. It may, but is not apt to, disappear without medical aid. If not checked it is liable to pass slowly into disease of the tissues of the organ, and the consequent enlargement result in displacement, and, all together, produce a condition difficult to remedy.

Differentiation. This disease may be confounded with corporeal endo-metritis. Indeed, the entire membrane of the cervix and body may be affected at the same time. The discharge, when the disease is in the cervix, is of the thick tenacious character mentioned, while, if it is in the body, it is thinner, and often mingled with blood, giving it a rust color, resembling the rust colored sputa of pneumonia. If an examination is made with the uterine sound, it will pass the internal os with some difficulty if the disease is cervical, while if it is corporeal it passes readily, as the internal os is patulous; then passing the sound up and gently striking the fundus, severe pain will result if the disease is corporeal, and the withdrawal of the instrument will be followed by a few drops of blood, which

will not be the case in the cervical variety. In cervical endometritis the constitutional symptoms are not so great as in corporeal.

The *prognosis* will depend upon the length of time the disease has existed, and the complications with the body or walls of the organ, yet, in the majority of cases, is favorable when a proper persevering course of treatment is persued. I say *persevering* treatment, as it often requires many months to effect a cure even in ordinary cases.

Gentlemen, in the *treatment* of this disease, constitutional as well as local means must be employed. The tendency of this disease is to produce anæmia, therefore a tonic and sustaining course will be required. The bowels should be watched, and constipation prevented. Moderate out door exercise should be taken, but over-exertion avoided. Nervous irritability may be controlled by the administration of bromide of potassium. The impaired digestion may be improved by pepsin, bismuth, and the vegetable bitters.

The local treatment is all important in this disease. In the first place the cervix should be irrigated night and morning by warm water containing glycerine, chloride of sodium, or some mucilaginous substance. This injection should be continued for fifteen or twenty minutes each time. A pleget of cotton, as large as a walnut, saturated with glycerine, containing a half drachm of tannin to the ounce, and applied to the cervix during the night, will have an excellent effect, both derivative and astringent. This can be readily introduced with a vaginal suppository tube, and easily removed by a tape or string attached to it for that purpose. This course alone, with proper gene eral and hygienic treatment, will often suffice to cur - mild cases of recent standing. But in most cases direct application of astringents and alteratives to the cervical cavity will be required. This can be best affected by first dilating the cervix by means of sea-tangle or sponge tent, and then painting the entire cervical cavity with tincture of iodine, a thirty grain solution of nitrate of silver, a saturated solution of sulphate of zinc or copper; or, as we have done in this case, with a solution of chromic acid, one part to two of water. This astringent application should be repeated once a week, always being preceeded by the tent. The tent should not remain in the cervix longer than twenty-four hours, and never introduced nearer

than five days preceeding or following the menstrual epoch. The solid stick of nitrate of silver may be used instead of the solutions, by introducing it up to the internal os, and cauterizing the entire cervical cavity. Dr. Lent's silver caustic probe is very convenient for this purpose. Before these applications are made the cervical cavity should be freed from the mucous that fills it, or clings to its surface. This may be accomplished by a pleget of cotton wraped around a small stick of whalebone, or wire applicator; or by a small bit of sponge fixed in a sponge holder, or long forceps, small enough to enter the cervical cavity. And by some one of these the medical substances can be applied after the cavity has been thoroughly wiped out. The cavity may be cleansed also by ejecting water from a long nozzled syringe against the os.

A very good plan of treating this form of endocervicitis is by the use of medicated sponge tents. The sponge is prepared by saturating it with solutions of iodine, iron, lead, zinc or carbolic acid, and then cut and pressed into the proper size and shape for use. Or the tent may be made with a hollow in the centre, which can be filled with an ointment of cocoa butter containing some astringent. After the tent is introduced, the warmth and moisture dissolves the medicine, and as the sponge expands, it is brought directly in contact with the diseased surface. The tent, itself, whether medicated or not, acts beneficially by pressure, especially in cases of granular endocervicitis or inflammation of the Nabothean follicles. But in some cases of very chronic inflammation of the Nabothean follicles we may have to resort to the application of the fuming nitric acid, or to the removal of the glands by means of the cutting steel curette. The curette should only be resorted to when other means fail; and after its use inflammation guarded against. It is radical in effect, as by it the glands are removed, and hence the disease will not reappear. Frequent applications of the nitrate of silver, the application of the *actual cautery*, or potassa fusa, may destroy the glands, but the sloughing caused by the cauterization is apt to be followed by contraction of the canal, and obstruction of the menstrual flow —a worse condition than the first. Contraction of the canal is less likely to follow the cauterzation by the fuming nitric acid, hence it is the preferable of the severe

caustics. The nitric acid, or a strong solution of chromic acid, should not be applied oftener than once a month. and two or three applications are usually sufficient in ordinary cases.

This patient, as you have seen to-day, has near entirely recovered, after three applications to the cervical cavity of chromic acid, conjoined with tonic remedies.

Fever, its Nature and Purpose.

By G. W. Kibbee, M. D., New York City, Jan. 18, 1877.

In the Medical News of Dec., 1876, there is a disquisition, the production of Dr. Z. C. McElroy, entitled "the Nature and Purpose of the Fever Process in Human Bodies," that is of exceedingly great interest to me, as I conceive that it strikes the *key note* to a new philosophy of fever, that will call for an entire change in our treatment of that scourge of the human race, so fearful in extent, that Prof. Gregory held that "eight-ninths of the human family die of fever;" and many other distinguished authors and teachers have expressed similar opinions. Dr. McElroy says, on page 650, "All the facts concerned in the causation of fever; the symptoms, the type, the remedial management, and finally, the post-mortem condition of the structure after fatal cases, are all harmonized when the fever process is regarded as in the interest of life, and not the work of an enemy in the interest of death." The concluding sentence of his paper sums the whole subject matter into an axiom, and is the key note that struck my mind so forcibly. It is this: "Fever is always nature's supreme effort to save life, and prevent the modification of tissues constituting chronic disease, or organic disease, so called." The discussion of the paper in the Muskingum County Medical Society, shows that, although the key note was struck, there was no harmony produced in the performance of the piece; for Dr. Ball says, "If the fever process is in the interest of health, then, it seemed to him, the more of it the patient had, the better for him." In his answer to the criticism of Dr. Ball, Dr. McElroy said, "in studying the progress of the fever process in any patient, he felt that he had a higher duty to perform than in trying to cure them with drugs and medicines."

He does not give a hint as to how he would perform that duty, nor even mention what the duty is, except in a negative way, where he says, "while he regarded the fever process as an enemy to life, he had treated it too much," and "since he had come to understand the nature and purpose of fever, he no longer pickled his patients in whisky;" and further, "for *his* part he could see the same necessity for the professional supervision of a fever process as there was for the services of an engineer on a locomotive;" and, "he felt that it was of the highest possible importance to both physicians and fever patients that each should know the truth." What truth? Why, the truth that the fever process is a friend to life. But Dr. Ball doubts it, and, it appears to me, that Dr. McElroy does not put this key note fact in a clear light. This I may not be able to do in this communication, but I hope to let a little "more light" in on this vexed question of fever. In order to do this, I proceed to lay the foundation of my remarks on certain well known physiological facts. The first, and absolutely essential condition of life and health in man and all the animals known as "hot blooded," is heat at 98°. So necssary is this standard of temperature to healthy vital action, that our bodies are composed, in weight and bulk, to the amount of about four-fifths, of the very best medium for equalizing heat and cold; the two great antogonistic forces in nature. I refer to the substance spoken of in our pharmacopeias as aqua pura, vulgarlarly known as water. Our medical scientists are, of late, according some significance to the fact that water serves a very important part in the economy of life, as well as a convenience to us in preparing our drugs for deglutition. It is not only the regulator of bodily heat, but it seems as a menstruum for all materials for building up and sustaining the tissues. It is so essential, that no organic structure can retain vitality for a moment without it. We may say, with propriety, that our principle of life swims in water; and water at about 98°.

This heat of human bodies is called vital heat, because it is produced by vital action in the organism. When the vital force is kept up by those substances and conditions which are suitable for the purpose, such as pure air, good water, food in proper amount and quality, sunlight, exercise, rest and sleep, in short, every thing comprised in the term hygienic, the heart beats regularly,

and with normal force and frequency, and the lungs respire in a manner to perfectly ærate the food; and the *heat* which results from that vital action is 98°, and normal.

When the vital force is stimulated, or goaded by inimical substances, such as those infusorial seed poisons, which, according to their inherent differences, develop, under the fermenting condition of excessive vital heat, into scarlatina, variola, or other specific diseases, which, in the language of Prof. Tyndall, "prey upon the blood and tissues," the heart beats with greatly accelerated force and frequency, and the lungs respire rapidly, in order to more quickly carry the blood to the depurating organs, that the impurities and poisons may be speedily cast out of the system; and the heat that results from that exalted action is *above* the normal standard, and excessive, or abnormal. As the same vital force produces the normal amount of heat, and the excess of it, the difference being only in the rapidity of vital motion, we can not fail to see that all we are required to do, at least all that Nature *demands* we should do, is to *remove the excess of heat*, and leave the exalted vital action to cast out the offending cause as quickly as it can.

This moderating of this excessive heat is provided for in the bountiful supply of cool water wherever organic life can exist, and is indicated as the sure remedy for excessive heat in all sentient beings, by their intense desire for it when over-heated from any cause.

We conclude, then, that the fever process, instead of being a unity, designed to " burn up the tissues " that have, in some mysterious way, been decomposed or changed by some inimical cause or power, is a duality, composed of exalted vital action and the consequent excessive heat. We conclude, too, that, as the waste matters, the worne out tissues and unassimilable ingesta, are regularly cast out through the depurating organs in health, by the vital force under the excitation of congenial substances and conditions, so are the poisons, together with the debris of the system, cast out through the same avenues of putrefaction; and their exit is hastened by the exalted vital action set up for that purpose, the same as a horse employs a greater amount of force to move a heavy load than is requisite to draw a light one. Is it not clear, then, that fever is *not* a unit, friend or enemy, to be dealt with

as such, but a duality, composed of exalted vital action and excessive heat, the *exalted action* being nature's *first* as well as last supreme effort to save life, or remove offending causes; and the excessive heat, being the *result* of the exalted vital action, serving simply to indicate with unerring certainty its own remedy by producing an almost insatiable desire for cool water to drink and to bathe in. In this physiological light, is it not patent that the errors which we were *all* taught by our Medical School Masters, and embodied in our practice of the past, lay in the fact that there was no distinction made between exalted vital action, a friend to life, because the life principle *itself*, working under difficulties, and the excessive vital heat, a most deadly enemy, because producing *all* the morbific changes that ever occur in a sentient organism while under the influence of fever, or exalted vital action and excessive vital heat.

Can Dr. McElroy, or can any one of us, adduce the slightest evidence that the presence of malarial or infectious seed poisons, causes the least change in blood or tissue until after vital resistance is set up against it, and the temperature of the whole system, at least that of the great vital organs, is consequently raised above the normal standard?

In all traumatic diseases or vital disturbances, there is no change of any living tissue until after inflammation, or exalted vital action and excessive heat. How many instances could our army surgeons cite of healing by first intention of fearful wounds, where the heat of the part was kept at the normal standard by the persistent and thorough application of cool water. The virtues of cool water in the treatment of lesions occasioned by violence were found to be such that the water dressing is now in universal use in all the army hospitals of the civilized world; practically recognizing the fact that excessive heat produces all the morbid changes in fully vitalized tissue. It used to be thought by the teachers of surgery, that increased vital action and elevated heat were necessary for the healing of wounds; but it is now seen, by the use of cool water, that the nearer the part can be kept at the normal standard of heat, the quicker and better will the repairs be made.

As in local traumatic diseases, so in general infectious or malarious; the *excessive heat* is the condition which

enables all seed poisons, whether vitalized or simply inimical, to develop or reproduce themselves in the impurities of the blood; those waste matters, which, as every physiologist knows, do no harm while the temperature is normal, and which are being constantly cast out through the emunctories.

With these physiological facts before us, it needs but little more than to make the axiomatic statement that normal heat, and fever heat, are one and the same thing, differing only in degree, as they are produced by the same cause, the vital force. As already observed, when the conditions are all favorable to health, the heart beats regularly, and the lungs respire normally, and the vital heat which results from that normal vital action is normal, 98°. When the conditions are unfavorable, the vital force increases the action of the heart and lungs in order to remove through the depurating organs whatever it is that offends, and the heat which results from that exalted action is excessive, but provided for by the instinctive desire for cool water. It is well known that the exalted vital action necessary to the performance of a hard day's work, if the excess of heat that results from that exalted action be taken away as fast as it is eliminated, as it is by the atmosphere in a cold winter day, no harm whatever results to the organism, except the drain on the original stock of vitality. The heart may beat and the lungs respire for hours with double their normal action, and the consequent excess of heat be eliminated with great rapidity, if it is removed by cool water, as in swimming, and the swimmer will scarcely feel tired from the unusual exertion. The plain reason is, that the functions of life are perfectly performed as long as the bodily heat remains at 98°.

Considering it proved that fever is a duality, exalted vital action and excessive vital heat, let us notice, for a moment, the *causes* of this disturbed vital action and excess of heat. Dr. McElroy refers to the multitude of names for fever, all based on the specific differences in the offending causes, which, owing to those differences, induce varied morbid phenomena, and reduces them all into two classes, those originating from external causes, and those from internal. It is really a matter of no consequence as to whence comes the cause of offense, whether from within or from without; the vital resistance is the

same, and the heat is the same, differing only in degree; but it is of the highest importance that we do not confound the stimulating or goading *causes* of the fever, with the fever itself. The history of therapeutic medicine is little more than a record of the mistakes in practice, caused by oversight of the physiological fact that the exalted vital action is in the interest of life, or, in other words, is nature's method of protecting herself against whatever is offensive to her, and of the fact that the excess of heat resulting from that exalted action, needs only to be removed with tepid or cool water, according to nature's instinctive demands, to secure absolute safety *in all cases of fever*, no matter whether the causes proceed from external or internal sources. Therapeutics, as taught twenty-five or thirty years ago, led us to think the causes of vital disturbance were something to be destroyed or combatted with medicine; but somehow we forgot our lessons in physiology, for *they* instructed us that all curative power resides *in the system*, and is the vital force itself; and that its action, whether produced by normal means, as proper food, pure air, good water, etc., or excited by abnormal stimulants, as scarlatina or variola poison; or lowered to scarce a perceptible throb, as in congestive chill, is always its *best effort* in the interest of the individualized structure. We cannot fail then to see that every manifestation of vitality is occasioned by the vital force itself, and whether it is excited by health-producing substances, or stimulated by such as are inimical, nothing should be done to lessen its power, as is the case when we administer drugs with the view of destroying the poisons, since they only prevent the vital force from manifesting the kind of disturbance which legitimately proceeds from the disturbing cause. These disturbing causes have no power in themselves to cause symptoms, they only have their peculiar properties, varying from each other according to inherent differences; and the excessive vital heat, if not removed according to the demands of nature through the instinctive desire for water, brings out all the different morbid phenomena through its power as a fermenting condition; the seed poisons serving as a ferment, and the impurities in the blood as the sustaining medium or malt, the disturbed vital force being the fire, the stomach preparing the fuel, and the circulatory and rerpiratory apparatus being the engine. What is the con-

dition of things in a fever that is especially dangerous to life? Nothing, as we have seen, but the fact that too much *heat* is evolved. The heat then is all we have to doctor. The self-regulating engine will take care of the rest. But how shall we bring the heat down to its proper degree? By lessening the fire? By meddling with the engine? That would not do, for the fire must burn hot, and the engine run rapidly, not to burn up the impurities and poisons, but to *expel* them through the depurating organs in the quickest time possible.

The question of temperature in fever is now receiving the investigating thought of representative medical men throughout Europe and America. Brandt, Neftel, Zurgensen, Liebermiester, Ziemssen, Lindwurn, Bamberger, Winternitz, Gignoux, and others in Europe, have made astonishing cures of typhoid and other fevers of high temperature by the persistent use of cool water; and some of our own distinguished teachers and practitioners, Flint, Thomas, and others, have added their experience and testimony to the fact, that when the excessive heat of the fever patient is abstracted with cool water, as fast as it rises, the morbid changes incident to any and all high graded fevers, do not occur at all. These facts seem very like the fulfillment of the hope so ardently expressed by Prof. Tyndall in his recent lecture, at Glasgow, Scotland, on "Fermentation and its Bearings on the Phenomena of Disease."

After discussing the subject of fermentation in a masterly manner, showing conclusively that all epidemic diseases are caused by vitalized parasitic germs taken into the blood by inhalation, he quotes Dr. William Budd, in his celebrated work on typhoid fever, in which he says he has often seen, in the day-laborer's narrow chamber, the father lying dead in the coffin, the mother in the sick bed, in muttering delirium, and nothing to relieve the desolation of the children but the devotion of some poor neighbor, who, in too many cases, paid the penalty of her kindness in becoming herselı the victim of the same disorder, and proceeds to say, "from the vantage ground already won, I look forward with confident hope to the triumph of medical art over scenes of misery like that here described." Those who will consider the recent experiences with water as an antipyretic, in connection with the physiological facts here set in order, can not fail, it seems to

me, to see that Prof. Tyndall's hope in medical triumph over the death scenes he describes, and with which we are all too familiar, is already accomplished in the discovery, that keeping the blood cool to the normal standard of heat is an infallible cure for fever of every name. So that if Prof. Tyndall and his co-scientists have found the remote *causes* of infectious fevers to be parasitic living organisms, their medical brethren have found the *remedy* to be cool water, so applied as to keep the body heat at the normal standard, a point plainly inimical to parasitic development and reproduction.

From this arrangement of well known physiological facts, we conclude—

1st. That the vital force, or life principle, is the prime cause of all motion in the human organism, from the first cell formation until the last throb of the heart.

2d. That heat at about 98°, is the first condition of life in the human body.

3d. That health is undisturbed vital action.

4th. That disease is disturbed vital action.

5th. That the causes of health are the presence and influence of those substances and conditions which are congenial.

6th. That the causes of disease or disturbed vital action are those substances and conditions that are inimical or unfavorable to the normal manifestations of vitality in the organism.

7th. That the presence or influence of hygienic substances and conditions excites the heart to beat and the lungs to respire with normal force and frequency; and that the vital heat, resulting from that normal vital action is 98°, and normal.

8th. That the presence or influence of any substance or condition that is inimical to life, stimulates the heart to beat and the lungs to respire with increased force and frequency; and that the exalted action is for the purpose of expelling the inimical substance, together with the refuse of the system through the depurating organs.

9th. That exalted vital action, which hastens the motion of the blood through the circulatory and respiratory systems, by augmented friction and increased oxygenation of the blood, raises the heat above that degree which is congenial to health, provided it is not removed by cool water or by cold air as fast as it is eliminated.

10th. That when the excess of heat above 98° is removed as fast as it rises, no more injury results to the organism from that exaltation of the vital action which is stimulated by yellow fever or scarlatina poison, than from that caused by the mental excitement which produces excessive beating of the heart and respiration of the lungs, while skating rapidly in the cold air of winter, or while swimming in cool water with competitors for a prize.

11th. That exalted vital action causes excessive heat, and the two together constitute *fever*.

12th. That exalted vital action, even if the resultant excess of heat be removed as fast as it rises, will exhaust the available stock of vitality, and death of the organism be the result, if a man use it all up in his muscles, or otherwise through mental control; or if it be exhausted in resistance to something deadly inimical, under the self-preserving instinct of organic life.

13th. That every abnormal change of fluid or solid, in the composition of the human organism, that occurs under vital control, as in all fevers, is under the influence of *excessive heat* as a fermenting condition, and without that condition of excessive heat, there is *no* abnormal change in blood or tissue, whether the organism is working rapidly to supply vital force to the muscles, or to expel inimical substances.

14th. That none of the causes of exalted vital action and excessive heat, or fever, which are taken into the blood through the lungs, the seed poisons in all affections and malarial fevers, have virulence enough in them to produce death of the organism by exhausting the vital force in its resistance to them, *if the excessive heat that is eliminated by that resistance be removed with cool water as fast as it rises.*

In this paper, as is seen, I have not referred to my own experience in the use of water as a therapeutic agent, preferring to bring distinguished names before the readers of this journal, but as every man of thought seeks out plans of his own for accomplishing a common result, I propose to give, in a future number or the Medical News, some of the methods which I have adopted during the past twenty-five years for administering the cooling treatment in fevers. When I took my degree in medicine, and went out into the world with all the confidence of a newly fledged bird in its powers of flight, I soon, like Dr. McEl-

roy, became dissatisfied with the results of "drugging and pickling" my patients, and commenced, very charily at first, to use cool water to reduce fever heat; but the success was such that I finally got to using it so as to keep the heat of the most malignant exanthems at the normal standard, culminating in my going to Memphis, Tenn., in the fall of 1873, where I successfully treated yellow fever.

Case of Typhlitis, with Perforative Ulceration of Intestine.

By R. B. ELDERDICE, M. D., McKnightstown, Pa. Reported to Adams Co. (Pa.,) Medical Society.

Patient, Mr. L. S., farmer, æt. 32, always enjoyed good health until 25th March, 1876, when he came under my care, suffering from a well marked attack of acute inflammation of cæcum, for which he was treated with large doses of opium, and freely blistered, making a good recovery to all appearances, he being discharged as convalescent, 4th of April. The illness had followed exposure to cold and dampness, but could scarcely be considered to have been caused by it. During the summer he worked hard, and seemed in good health, except once, in July, he called at my office for medicine to relieve pain in his bowels.

Was called in haste, at 6 P. M., Oct. 13, 1876. When found he had been ploughing all day previous, changing horses, and pushing his teams fast as possible; had come home that evening chilled, and complaining of pain in abdomen, which continued, becoming more severe. When seen, he was suffering very severe pain in right inguinal region; whole abdomen tender under pressure; cold sweats; pulse 96, and weak; tongue clean; bowels constipated; was prostrated, and anxious.

Diagnosed same complaint for which I had treated him seven months previous, viz., inflammation of cæcum, or its vermiform appendix.

Prescribed $\frac{1}{4}$ gr. doses sulph. morph., to be taken every 2, 3, or 4 hours, as needed, to subdue pain, and application of hot fomentations to the abdomen.

Oct. 14. Patient improved, pain less, and paroxysmal, abdomen tender; no perceptible enlargement; nor any tympanites. Gave calomel gr. v., jalap gr. x., which

operated freely; followed it with opium gr. i., quiniæ gr. ss., every four hours. From this time to 20th continued same treatment, with a purgative enema, alternate days, which acted promptly. Diet restricted to animal broths, milk, and soft boiled eggs, with patient improving, and up and about his room.

Oct. 20. Severe pain in paroxysms, resembling colic; abdomen tender, particularly over region of cæcum, and an oval tumor, the size of a hen egg, very perceptible to the touch, occupying the situation of the vermiform appendix. Continued the opium treatment, and applied a blister over inguinal region.

Oct. 24. Tumor increasing in size, condition of patient much same as 20th, costive, requiring enemas; pain paroxysmal; pulse 98, feverish; some tympanites, pain; in penis, and difficulty in urinating. Same treatment continued, with addition of ol. terebinth, ℥ss to the purgative enemas, and half ounce of whisky per orem, every four hours.

Oct. 25. Dr. R. Horner, of Gettysburg, called in consultation. Condition of patient much same as 24th; but less tympanites, and less pain; tongue a little furred, and red at tip and edges; tumor now about size of a goose egg, tender and painful; pulse 100, with considerable fever present. It was decided to endeavor to open the bowels by a dose of castor oil, and continue the opium treatment, with the liquid nourishment and stimulants, as before, and to paint surface over tumor with tinc. iodine, until skin sore. The oil, ½ oz. dose, operated nicely, and patient gradually improved, the treatment being continued, but reducing the doses of opium, and not requiring enemas until 31st.

Nov. 4. The phlegmonous tumor having suppurated, now opened into the bowels, discharging per anum a considerable quantity of pus and some little blood, for two days, the discharge only occurring when bowels were spontaneously evacuated.

Nov. 6, 8, 10. Patient comfortable; bowels regular; pulse 86; tongue clean; appetite good; apparently convalescing; tumor reduced to less than one-third the size it was the 25th, but still hard and tender.

Nov. 13. Was called in haste, at 1 A. M., found patient suffering extreme severe pain in abdomen, bathed in a cold sweat, tossing about and saying, "the pain would kill

me if not quickly relieved." He was also every few minutes vomiting large quantities of thin, light yellow, frothy, stercoraceous matter, having an extensely fecal odor, and annoyed by paroxysms of distressing hiccough, complaining of intense thirst; pulse 110, weak; tongue red and dry; respiration hurried; temperature reduced. Sprinkled $\frac{1}{4}$ gr. sulph. morph. dry on tongue. It was at once rejected. Repeated it with same result. Then injected $\frac{1}{8}$ gr. morphia hypodermically in arm, which gave speedy relief to the pain, though vomiting continued at intervals, but not so frequently. He rested petty well until 5 A. M., when pulse was 98; less thirst; bowels distinctly defined through abdominal walls; occasional vomiting of same fecal liquid, and pain again increasing in severity. Repeated hypodermic injection of $\frac{1}{8}$ gr. morphia at 6 A. M., and ordered yellow of an egg, beat up with milk, 1 oz., whisky $\frac{1}{2}$ oz, to be injected per rectum every four hours, and hot fomentations to abdomen. At 3 P. M. (same day) Dr. Horner again saw the case with me. The pain was then less intense; vomiting had ceased; some nausea present; pulse 98; tongue red; abdomen somewhat tympanitic, but less so than before; tumor same size as on the 10th; abdomen not so tense as the night previous, but still presenting a feeling of fullness to the touch. Dr. H. prescribed ice, allowed to dissolve in the mouth, and $\frac{1}{4}$ gr. doses sulph. morph. every 3 or 4 hours. Gave $\frac{1}{8}$ gr. morph. hypodermically in abdomen. Continued supporting enemas, and applied turpentine stupes and hot water dressing to the abdomen.

Nov. 14. Patient remained much in same condition, and received the same treatment, hypodermic injections of morphine being given morning and evening, that controlling the pain better than the morphia, per orem.

Nov. 15. At 8 A. M., and 7.30 P. M., condition same, and same treatment continued, including hypodermic injections. At 11.30 P. M., was called in haste, with message that "patient was worse than ever, and wouldn't live till morning." Owing to extreme darkness, and bad condition of road, it was 12.30 A. M., of 16th by time I saw him, when found his condition about same as on night of 13th, except that there was no vomiting, though some nausea, and very severe abdominal pain. Injected $\frac{3}{16}$ gr. morphia, hypodermically, and in an hour $\frac{1}{8}$ gr. more, when he soon fell asleep, and slept until 6 A. M. At 7 A. M.,

administered purgative luema, which acted promptly, producing free evacuations of the bowels, (two in number,) the appearance and smell being the same as that of the matter vomited the 13th, and having, in addition, numerous long, flattened, soapy-looking masses of fæces. Repeated $\frac{3}{16}$ gr. morphia hypodermically, at 7.30 A. M., and left him pretty comfortable. Saw him again at 7 P. M., same day, when was informed he had had a hemorrhage from the bowels, of bright red blood, perhaps a fluid ounce in quantity. Repeated $\frac{3}{16}$ gr. hypodermic injection of morphia.

Nov. 17. Patient slept well all night. As he expressed it, "the first night's sleep since sick." From this time on there was no further return of severe pain, and he gradually improved, taking his medicine entirely by the mouth, and taking $\frac{1}{4}$ gr. morphia every four hours, then every six hours, until 23d, when stopped the opiate. The evening of 17th began use of iced milk by the mouth, this being the first nourishment introduced into the stomach since the 11th. To this was gradually added soft boiled eggs, milk punch, and Colden's liquid ext. beef, and similar nourishing diet, discontinuing the rectal supporting enemas the 18th.

Nov. 23. Tongue clean and moist, pulse 86, respiration normal, temperature same, no pain, tympanites, nor abdominal distension; bowels regular; tumor still perceptible, and hard, but gradually reducing; cheerful, feels well, moves about his room, and is fairly convalescent. Duration of illness, six weeks.

The case, in many respects, was a rare one, and the cause producing it is not satisfactorily known. First, there was typhlitis, (whether confined to the cæcum, or to its vermiform appendix, or involving both, is a matter of doubt,) then abscess, with perforative ulceration of intestine, and discharge of pus from the bowels; then peritonitis. The length of time from date of ulceration of bowels and discharge of pus until the supervention of peritonitis was such, as to preclude the idea that it was produced by the perforation of the intestine, nine days having elapsed between the two occurrences.

Dr. H. has suggested that the peritonitis may have been produced by the breaking up of recent adhesions, in the straining and retching accompanying the acts of vomiting, which is very probably the correct theory. The subcu-

taneous administration of morphia controlled the severity of the pain much more promptly and satisfactorily than when given by the mouth, and its influence was felt for a much longer time than when four times the quantity was taken into the stomach. The injection of morphia into the abdominal surface, though very near the seat of pain, failed to produce much effect in subduing pain, while those injected into the arm always gave prompt relief.

Observation of cases of this kind, while leaving us in doubt as to the etiology of the disease, show the beneficial therapeutic effects of the opium treatment in this class of diseases. All species of mammalia, except "ourang-outang" and the "wombat," are created with the "appendix vermiformis" as a portion of their anatomical structure; in them the useless constricted portion of cæcum, so named, is wanting, in which respect they are ahead of Darwin himself.

Ophthalmia Neonatorum, or Purulent Ophthalmia of Infants.

By W. R. Amick, M. D., Cincinnati, O.

This is a disease that is probably more frequent among infants than is generally supposed. In its nature and symptoms it assumes the character either of the catarrhal or purulent form of ophthalmia. The inflammation generally appears in a day or two, or at most a few days after birth. However, we meet with cases in which the disease does not manifest itself for six or eight days after birth. Strictly speaking, we cannot call such cases ophthalmia neonatorum, but they are generally classed as such, and for all ordinary purposes such a classification will suffice.

The symptoms of ophthalmia neonatorum vary considerably, depending on the amount of inflammation present. In the milder forms it assumes the nature of an ordinary case of catarrhal conjunctivitis. There exists a congested condition of the conjunctiva, the lids may be swollen, with some increase of temperature. Tears will be secreted freely, and when the lids are opened, will run down over the cheeks freely. The discharge is generally muco-purulent in character, and during the night will col-

lect at the inner canthus and along the margins of the lids, so that the lashes are glued together in the morning. In the milder forms there is generally no trouble experienced in everting the lids. This is usually performed in the following manner: The attendant or nurse sits directly in front with the child lying upon its back, its head being placed between the knees of the operator. The latter can then hold the head and prevent the child rotating it at the same time that he has both hands free. Then seizing the cilia with the left thumb and forefinger and drawing the margin of the lid forward and upward, at the same time pressing on the upper half of the lid at the superior border of the tarsal cartilage with a probe or pencil, the lid will be easily everted. Sometimes they can be everted by placing the index finger upon the lid in such a manner that about two-thirds of the first phalanx will extend down below the palpebral fissure, then fixing the upper part of the lid with a probe, and press slightly at the same time that the finger is drawn gently upward.

The papillæ are somewhat swollen, the meibomian glands being hid from view. The inflammation may extend to the ocular conjunctiva, and a condition of chimosis be produced. This is caused by an infiltration of serum into the conjunctival and sub-conjunctival tissues, so that it presents the appearance of a basin, the cornea forming the bottom. In some cases the cornea becomes implicated. This is due to a want of nutrition, the normal supply being decreased to a certain extent by pressure upon the sub-conjunctival vessels, at the same time there frequently exists a debilitated and ænemic condition of the patient.

Contagion is a frequent cause of the disease. The infection may be from some leucorrheal or gonorrheal discharge existing in the vagina at the time. It, no doubt, is sometimes caused by carelessness on the part of the nurse in washing the child, allowing soap to get into its eyes. It may be caused by bright light or cold, but in such cases it does not make its appearance for a few days after thus exposed. In those cases where the ophthalmia is due to infection, the disease generally manifests itself in from a few hours to two or three days.

The following case presents the disease in a more severe form. Johnnie F. was born Sept. 22d, 1876, a few days afterwards his mother noticed that his eyes were begin-

ning to get sore. Some of the older "and more experienced" ladies told her that it was nothing but cold, that nearly all babies were "thusly" troubled, and to let its eyes alone, for in a few days they would be all right. She let it alone until the first of October, when I was first called to see the child. The lids of both eyes were considerably swollen, with an increase in redness and temperature. The swelling was so great in the lids of the left eye, that it was impossible to see the cornea without the aid of an elevator. When the lids were separated. quite a purulent discharge made its escape. The conjunctiva both palpebral and ocular, was in a highly congested condition. There was a spasmodic entropium of the lower lid, the margin being turned backward so that the cilia were hid from view. The chimosis was well marked. There was considerable pain, which was made manifest by the naturally good natured child spending all of its spare time in crying.

The treatment consisted first of cold applications to the eyes, and using a three grain solution of alum, putting three or four drops in the eyes every two hours. On the second day a large clot of pus and blood mixed together made its escape when the lids were separated. The swelling in the lids of the left eye was not quite so marked. The lids were everted, and a four grain solution of nitrate of silver was used, applying it lightly over the lids with a camel's hair brush, and then in a few seconds washing it off with tepid water. This was done once daily, at the same time that the cold applications and alum solution were continued. At the end of a week the swelling had nearly disappeared from the lids of the left eye, but had increased in those of the right. The cold applications were made to the right eye. As the discharge continued, although not so free, the solution was changed from five to ten grains. This solution was used for four or five days, when there was a noticeable decrease both of the discharge and the swelling of the eye-lids. Then the solution was changed for a weaker one, again using five grains, and in a couple of days more, three grains. At the end of the fourth week the nitrate of silver was discontinued, and a three grain solution of sulphate of zinc was used morning and evening. The alum solution was discontinued, and a few days later, the zinc solution was used once a day, and then every other day, and finally it was

discontinued, all of the inflammation having disappeared. The treatment embraced a period of about six weeks.

It must be remembered that the towels, sponges, etc., that are used for cleansing the patients eyes, should be used for no other purpose, as there is danger of transmiting the disease in this manner.

Cleanliness is one of the most important points and should not be disregarded. If there is a tendency towards constipation of the bowels, a few doses of castor oil should be administered. Where there is only a small amount of inflammation, with a scanty discharge, a two grain solution of either alum or sulphate of zinc may be used three or four times daily. But if the discharge is thick and free, with a considerable quantity of pus in it, stronger solutions can be resorted to with generally good effect. In such cases the former solutions may be increased to five grains, or nitrate of silver, four or five grains to the ounce of distilled water, may be used instead. About as good a plan as any is to use a five grain solution of nitrate of silver, once a day, and then a mild solution of alum or sulphate of zinc, say two grains to the ounce, three or four times. In severe cases, where there is considerable increase of swelling and temperature in the lids, cold compresses or leeches may be used with benefit. The leeches should be applied to the temple or at the inner canthus, and not to the lids, as there would be danger in so doing, on account of the connective tissue which might become infiltrated with blood. It would not be pleasant to have an abscess or erysipelas following the application of a few leeches. To prevent the eye-lids from becoming so thoroughly glued together in the morning, a little simple cerate may be used, rubbing it on the margin of the lids in the evening. In severe cases there is a tendency for the cornea to become implicated, so that it should be watched closely. It is doubtful whether calomel does any good in these cases. If there is a weak and debilitated condition of the system, tonics and good diet are indicated, and the indication should be fulfilled. No doubt the majority of these cases would be materially benefited by giving some preparation of iron, and of bark.

Fate.

By J. H. Cox, M. D., West Liberty, West Va.

> "Throned in omnipotence, Supremest Jove
> Tempers the fates of the human race above;
> By the firm sanction of His sovereign will,
> Alternate are decreed our good and ill."

Life is a progression from wish to wish, and as one desire is satisfied others solicit from afar. We are sometimes led to imagine that an unobstructed path of prosperity lies before us, as the success of one design facilitates another, and the opening prospect shows pleasures at a distance. But who knows, or *would know*, the future? What triumphs, what disappointments, what falls await us! How many air-castles are to be carried away, how many fond hopes are to be blasted!

> "Press not too far (replied the god), but cease to know,
> What known will violate thy peace;
> Too curious of thy doom! with friendly woe
> My breast will heave, and tears eternal flow."

The world which we inhabit is not a plain. Mountains hung with vapors, motionless and still, arise before us; and dark valleys and deep waters cross our pathways. So it is with life. It has its sunny seasons, its cares, and its gloom. If a panoramic view could be spread out before us in the morning of life, and all its various incidents weighed with a mature intellect, in the balance of good and evil, it would require the stoutest heart to commence the journey of life. Weisse says, "Kindly does the Deity envelop the future in darkness; to know it distinctly beforehand would be a punishment. Should I see good fortune on my path, I should proudly be puffed up, and, from levity or indolence, miss my aim. If I saw misfortune I should tremble, and the future would embitter the happiness which at present gladdens me."

It has from time immemorial been believed by philosophers that destiny, or fate, is concerned in guiding mankind through the pathway of life. The Jews, in their long captivity, received this idea from the eastern nations. The writings of the immortal poets of ancient Greece and Rome place man's destiny in the care of the gods. The doctrine of predestination has been taught, and condemned, and taught again by theologians, from the earliest ages of the Christian Church; and though, at first view,

such a doctrine might appear partial and unjust, science comes to its support, revealing immutable laws, by which not only matter is governed, but also thought, and our wishes, from which our actions spring,

Remembering how much our state and actions depend upon remote influences, and the circumstances by which we have been surrounded, causes thoughts of humility and distrust to cross the mind. A moment's glory, and what fate may attend us? And who can tell what flaw may exist in his own organization, and when he may fall? Though he may, as a firm castle on a rock, have withstood the floods, and storms around him, the next temptation may be too much for his frail nature. The great, the virtuous, and the good, have fallen, and no one has a right to say that a similar fate will not overtake him.

Man's actions depend on the inherent constitution of his brain, and are not always to be anticipated from his belief and theories. The darkest designs may exist in a mind cultivated and adorned by science; and under the cover of orthodoxy, in the most minute particulars, may be an ambition that cannot bear to be disappointed. The history of many of those who have led the van in religious movements illustrate these views. The great Constantine, Lardner says, is not to be regarded as a cruel prince, or a bad man; yet we are informed that he cruelly murdered his former familiar friends, his children, and perhaps his wife. The pious Theodosius, in a fit of barbarous anger, destroyed the inhabitants of Thessalonica, including men, women and children, with its visiting strangers. Luther applied the most reproachful and indecent epithets to the persons with whom he had long been associated; and his piety is more than questionable in giving his assent to the polygamy of the Landgrave, Philip of Hesse, "to promote the advantage of both body and soul, and the greater glory of God." Calvin's character, when at the University of Bourgess, is said to have been "bad, and his morals infamous." (M. Blanst, 11, p. 273.) When civil and ecclesiastic dictator of Geneva, every word spoken contrary to his gloomy and severe views was punished with the greatest rigidness and cruelty. Jacob Grunet was executed for having written some words against the dictator, who, in open council, had called him a *dog*. Gentilis was condemned to death for saying that Calvin had erred in the doctrine of the Trinity, aud only escaped by a full re-

traction and apology. Micheal Servetus, the anatomist, while passing through Geneva, was seized and burned by order of the dictator, for having published some heretical views on the doctrine of the Trinity. John Wesley, when he came to the United States to preach the Gospel to the Indians in Georgia, did not escape the reproach of too great a familiarity with servant girls, with whom he often traveled, to the shame and disgust of his brother Charles, and his many friends.

When we enter into the realities of the world, peculiar traits of mind lead us in particular channels of life. We may embrace the profession of theology, medicine, or law, and the influences connected with each have a tendency to mould a character adapted to that calling. Unworthy temptations, that lead away and endanger success, position, and rewards, are weighed in the mind, with the state we would emulate; the natural innate, acquired desires, let them be low and sensual, or high and intellectual, will be placed in the balance. Disinterested benevolence and disinterested goodness are perhaps seldom found; all is *self*, and a strife after gratification, happiness and glory the great ruling passions of the soul.

Selections.

Stirpiculture.

We find the following paragraphs published in a report of the introductory lecture delivered to medical students in October last, at University College, London, by Dr. Henry Maudsley:

"You will not be long in practice before you will have many occasions to take notice how little people ever think of the power which they have over their own destiny, and over the destiny of those who spring from them—how amazingly reckless they show themselves in that respect. They have continually before their eyes the fact that by care and attention the most important modifications may be produced in the constitution and character of the animals over which they have dominion—that by selective breeding an animal may almost be transformed in the course of generations; they perceive the striking contrast, between the low savage with whom they shrink almost

from confessing kinship and the best specimens of civilized culture, and know well that such as he is now such were their ancestors at one time; they may easily, if they will, discover examples which show that by ill living peoples may degenerate until they revert to a degraded state of barbarism, disclosing their former greatness only in the magnitude of their moral ruins; and yet, seeing these things, they never seriously take account of them, and apply to themselves the lessons which lie on the surface. They behave in relation to the occult laws which govern human evolution very much as primeval savages behaved in relation to the laws of physical nature of which they were entirely ignorant—are content with superstitions where they should strive to get understanding, and put up prayers where they should exert intelligent will. They act altogether as if the responsibility for human progress upon earth belonged entirely to higher powers, and not all to themselves. How much keener sense of responsibility and stronger sentiment of duty they would have if they only conceived vividly the eternity of action, good or ill; if they realized that under the reign of law on earth sin and error are inexorably avenged, as virtue is vindicated in its consequences; if they could be brought to feel heartily that they are actually determining by their conduct in their generation what shall be predetermined in the constitution of the generation after them! For assuredly the circumstances of one generation make much of the fate of the next.

"In the department of medical practice in which my work mainly lies, I have this amazing recklessness strongly impressed upon me; for it occurs to me, from time to time, to be consulted about the propriety of marriage by persons who have themselves suffered from insanity, or whose families are strongly tainted with insanity. You will not be surprised to hear, I dare say, that I don't think any one who consults me under such circumstances ever takes my advice except when it happens to accord with his inclination. The anxious inquirer comes to get, if he can, the opinion which he wishes for, and, if he does not get that, he goes away sorrowful, and does just what his feelings prompt—that is, gets married when he has fallen in love, persuading himself that Nature will somehow make an exception to inexorable law in his favor, or that his love is sufficient justification of a union in scorn of

consequences. Certainly I have never met with so extreme a case as I chanced to light upon in a book a short time ago. 'I actually know a man,' says the author, 'who is so deeply interested in the doctrine of crossing, that every hour of his life is devoted to the improvement of bantam fowls and curious pigeons, and who married a mad woman, whom he confines in a garret, and by whom he has insane progeny.' But I have met with many instances which prove how little people are disposed to look beyond their immediate gratification in the matter. If it were put to two persons passionately in love with one another that they would have children, one of whom would certainly die prematurely of consumption, another become insane, and a third, perhaps, commit suicide, or end his days in a work-house or jail, I am afraid that in three cases out of four they would not practice self-denial and prevent so great calamities, but self-gratification, and vaguely trust 'the universal plan will all protect!'

"Those who pay no regard in marriage to the evils which they bring upon the children, or in their lives to the sins by which the curse of a bad inheritance is visited upon them, may plead in excuse or extenuation of themselves the vagueness and uncertainty of medical knowledge of the laws of hereditary action. We are unable to give them exact and positive information when they apply to us, and they naturally shelter themselves under the uncertainty. Were our knowledge exact, as we hope it will some day be, we could foretell the result with positive certainty in each case, and so speak with more weight of authority. It is one of the first and most pressing tasks of medical inquiry to search and find out the laws of heredity, mentally and bodily, in health and in disease, and, having discovered exactly what they are, to apply the knowledge purposely to the improvement of the race —that is, to prevent its retrogression, and to promote its progress through the ages. I see no reason to doubt that by discovery of these laws and intelligent practical use our discoveries we might in the fullness of time produce, if not a higher species of beings than we are, a race of beings, at any rate, as superior to us as we are superior to our primeval ancestors; the imagination of men seems indeed, in the gods which they have created for themselves, to have given form to a forefeeling of this higher development. But I will not pursue this pregnant matter

further now; I have touched upon it only for the purpose of illustrating the large scope of the medical work of the future, which is to discover those laws which have been in operation through the past to make man the superior being which he is, and to determine his future action in intelligent conformity with them; not only to cure disease of body and mind, as it has aimed to do in the past, and to prevent disease, as its larger aim now is, but to carry on the development of his nature, moral, intellectual, and physical, to its highest reach."

Plastic Dressing in Fractures of Lower Extremities.

By DAVID W. YANDELL, M. D.

GENTLEMEN: The other day, after I had dressed a fractured leg in your presence, a member of the class asked me, *What was the best time to put up such fractures?* My answer, you may remember, was, *The earliest possible moment after the bone was broken. The sooner the better.* And now, after weighing my experience in such cases as carefully as I am capable of doing, I wish to add this to my reply on that occasion: *Dress the fracture, if you can, on the spot.* Do not, if it can be avoided, have the patient moved a single foot from where he received the injury; for he can undergo no movement of the limb without augmenting his pain and increasing his risks.

A little while back a merchant of this city got a simple fracture of the bones of the leg. He was put in a spring wagon and started to his house. On the way the upper end of the tibia was thrust through the skin, and what, when he left his store was a simple subcutaneous wound, had, before he reached his residence, been made an open wound and converted into a compound fracture. The second accident was worse than the first. I saw more than a score of times, during the late war, soldiers who were started to the rear with simple fractures of the lower extremity, who, when they reached the hospitals, had compound fractures. The jolting inseparable from the best managed transportation on wheels almost certainly gives rise to pain, which means, in almost every instance, additional injury to the soft parts, and, as I have just remarked, it is sometimes even sufficient to change a

simple into a compound fracture. Carrying patients with broken legs on litters on men's shoulders is safer than on wheels, but this can not conveniently be done except for short distances; and no matter how carefully it may be executed, it is nevertheless obnoxious in some degree to the objections I have just named. And this, too, though the surgeon may himself superintend the transfer, and before undertaking it encase the injured limb in a temporary, or what has come to be known as a field dressing; for this dressing, however well applied, is after all but a make shift—it gives pain and disturbs the fragments of bone while it is being put on, and does the same when it is taken off.

Some years ago, when my lamented colleague, Prof. Bayless, was lecturing one day on the subject of fractures, I was called to see a negro man with a broken thigh. I remembered it was the hour for my friend's lecture. The patient, who wished to go to hospital, was only a few blocks from the University. I thought the case would be an agreeable surprise to Dr. Bayless, and would serve better than diagrams or words to illustrate the subject of his lecture, and so after adjusting the fragments and applying a good field dressing to the limb, I placed the patient on a stretcher, and this on the shoulders of four stout men, and putting these under way, I accompanied the cortege to the lecture room. When we took up our march, I must believe the broken bone was well in place; but when we reached our destination, and removed the dressing, the extremities of the fractured femur were frightfully displaced, and the sufferings of the patient extreme. A part of both these features was due to the motion which is well nigh inseparable from every attempt to transfer persons with broken legs from one spot to another, and a part of the violent spasmodic action of the injured muscles which, primarily lacerated, were still further vexed by being still further disturbed,

So my injunction to you to-day is that if you would encounter a broken leg when the injury done is at the minimum, when in dressing it you would give least pain, and have it most in your power to avert inflammation and all the evils which journey in its train, you must do so on the spot where the accident has occurred, and as soon afterward as you can get to it. Every inch that a fractured leg is moved is hurtful; every moment lost before putting it up is injurious.

A man in the employ of the gas company here sustained a fracture in the lower third of the leg, within a few feet of my office door. In less than forty minutes after the plastic dressing was drying on the broken limb. Two hours later the patient was removed without the least suffering to his home, a mile away, and had he been accustomed to their use might have walked on crutches the next morning.

It will oftentimes happen, however, that the opportunity to act with the promptness I have advised is not afforded you. You may not see the fracture until after swelling has set in, and the limb has grown painful and red and hot. What then? Why, do just this: Put the fracture up as soon a you can get your dressing ready. Go to work then and there, and encase the limb in some form of fixed apparatus. It may be Paris plaster, or eggs and flour, or glue and zinc, or liquid glass, or shoemaker's paste; only let it be something plastic, and apply it instantly.

Those of you who have been following these lectures longest can not recall a single instance in which you ever saw me postpone dressing a fractured leg or thigh because of swelling in the parts. On the contrary, I have unvaryingly inculcated that swelling and pain are to be regarded as but so many additional reasons for fixing the limb—for rendering it immovable—for placing the fragments so that neither the movements of the patient nor spasms of the muscles can disturb them. Pain, as Mr. Hilton in his lectures on that subject has so well expressed it, is a monitor—*the* monitor, as he puts it; and here it clearly seems placed to warn the surgeon against further delay in fixing the limb, and so fixing it that displacement can by no possibility again occur. Nor is swelling to be regarded as much the inferior of pain itself as a monitor. The two speak the same language. If you are truly wise, you will heed alike the voice of both; their admonitions are the same—they are calls for rest; and I beg you to believe that the more quickly and the more perfectly you secure this, the more rapidly and the more completely will they quit the broken limb. Oftentimes the injury done to the soft parts by the ends of the bones being suddenly and violently displaced by muscular action, or by change in the position of the patient, gives rise to some of the greatest dangers which occur in fractures. Hence, the sooner you adjust the fragments, and the more se-

curely you will provide against their subsequent displacement, the better you will have treated the case. Let neither pain nor swelling deter you from dressing the limb at once. If you see the fracture first at night, I pray you wait not till morning to put it up. Don't trust to sand-bags, or pillows, or splints, or this or that other device, and finally take your leave, saying you will call in the morning. A sight of mischief may occur between midnight and sunrise.

Some years ago a pilot jumped from the hurricane deck of a burning steamboat at the wharf at St. Louis, on to the boiler deck of a boat lying alongside, and sustained a fracture of both bones of the leg. The limb was well put up in splints, and the patient brought by rail to his home in this city. Forty-eight hours after the accident, when I first saw him, the limb was much swollen and very painful. I applied the plastic dressing at once, and had the satisfaction, not only of relieving all suffering immediately, but also of saving a man of very feeble constitution from the long confinement inseparable from any other mode of treatment.

An old gentleman fell, one Tuesday, and broke the two bones of the right leg about their middle. A medical man dressed the parts in the usual way. Thirty-six hours after I found the limb hot, painful, and much swollen. Did I wait for these conditions to abate? Not a bit of it. I ripped up the wrappings in which the leg had been enveloped and put on the final and only dressing which is required in such cases. The next day the patient sat up, and on the following Sunday he went on crutches, with his foot in a sling, two hundred yards to church.

A lady trod on a bit of orange peel, fell and broke her femur in its upper fourth. My friend, Professor Bayless, who, though he reposed great trust in the plastic apparatus, preferred waiting the conventional fortnight for the swelling, and so forth, to subside, applied the long splint, and made the orthodox extension and counter-extension enjoined in such cases. The limb swelled enormously, and the pain was extreme. At the end of three days of very great uffering, I saw the case with my colleague, and applied the plastic dressing while the patient was under chloroform. There was no more pain after that, and in a week the lady could, when assisted, get on crutches and move about her room.

From that day my lamented predecessor became a convert to the immediate application of the fixed apparatus, and among the last services it was my privilege to render him, when his failing health obliged him to abandon such work as called for much physical exertion, was putting up a broken thigh in one of his patients immediately after the accident happened. In that case there was no swelling; none had had time to occur, and the early application of the dressing had most certainly prevented the swelling. In proof of this I need only refer you to my own experience in its use, and state that in all the cases in which I have applied it, *I have never had occasion to remove it on account of swelling in a single one.* Many times when I have applied it to limbs already swollen, I have been obliged afterward to open it and overlap the edges, or trim them down, in order to adapt the bandage to the shrunken condition of the parts. Nor is this my own observation alone. I may fairly say that it includes the experience of two surgeons very favorably known to you—Professor Cowling and Dr. Roberts, both of whom, former pupils and chiefs of this clinic, are now colleagues, and who, as I believe, have never dressed any fracture of either the leg or thigh by any other than the fixed apparatus. These gentlemen will tell you, as I have done, that when the plastic dressing is applied to a fracture before swelling occurs, none will occur; and that when it is applied after swelling has taken place, the swelling will begin at once to abate and soon disappear altogether.

Nor do these remarks apply alone to simple fractures of the lower extremity. They are equally true of compound fractures in this situation.

A boy. eleven years old, got a compound, comminuted fracture of the left tibia, just below the tubercle. The laceration of the soft parts was considerable. I picked out with my fingers a number of loose fragments of bone, brought the edges of the wound together, and three hours after the accident put the limb in the immovable apparatus. I then cut out a space sufficient to dress and watch the wound. In less than a week the lad went in a wagon, over a rough road, nine miles into the country. In nine weeks he walked into my office with a firm, smart step, and without the slightest shortening.

Three years ago, while Professor Cowling was serving his term at the hospital, Pat Stanton, whom you occasion-

ally see at this clinic, got an extensive compound, comminuted fracture of the right leg. The contusion and laceration of the soft parts were simply frightful. The accident happened in this wise, and I mention it in order that you may the better appreciate the real magnitude of the injury. Stanton and a fellow laborer were engaged in lowering a lot of whisky from the street into a very deep cellar. Stanton's post was in the cellar. By some mismanagement one of the barrels rolled off the ways on which it had been placed, and fell a distance of twelve or eighteen feet on to Stanton's leg. Now, a barrel of whisky, taken at stated periods, is one thing; but taken on a sudden and on one's leg, is another and a very diffirent thing. Stanton was removed to the hospital, where he was soon seen by Dr. Cowling; the internes, in the meantime, having decided that it was clearly a case for amputation. I was sent for, and when, after consultation, it was decided to attempt to save the leg, Stanton drew me near him, and in a feeble voice, for he was still suffering from shock, said: "Doctor, had you told me my leg had to come off I should have asked you to put a pistol ball through my head, and let me go at once." The plastic dressing was used instead of either the knife or the pistol, and you may now see Stanton almost any day earning his living on two good legs as a street cleaner. I hope you will not encounter, indeed it would be difficult to conceive of, a more unpromising case than Stanton's, or one which put the fixed apparatus to a severer test. I am convinced that no other dressing could have secured the same happy result; and even this would, I believe, have failed had its application been delayed for the ten or twelve days advised by some surgeons.

In 1870, when I had six year's less experience than I now have in the use of the plastic dressing, and when among surgeons generally there was less positive knowledge of the inestimable advantages of its immediate application, I stated that if the bandages were cut throughout their entire length, as soon as dry, and their edges subsequently brought together either by additional strips or by loop-knots, the principal objection urged against this dressing, namely, that it may become too tight as the swelling augments, or too loose as the swelling subsides, would be obviated. This statement grew out of my respect for the opinions of my seniors rather than out of

the teachings of my own experience; for at that very time I was unable to recall a single instance where the dressing once applied, before swelling had occurred, that it afterward became necessary to remove it because of swelling. *A limb timely put up in the plastic apparatus will not swell.* That is my dictum to-day. Hence there will be no occasion to open the dressing in these cases. Where swelling already exists it may, on subsiding, leave the limb, as you have seen, so shrunken as to render it necessary to cut and refit the bandage; but it is in these cases and these alone.

To conclude: What I wish to impress upon you to-day is, that the best time to dress these fractures is the first moment after they have been inflicted. Every moment of delay is hurtful. The best place is on the spot where they have occurred. Every inch the limb is removed is an injury; and, finally, no dressing is comparable to the fixed dressing.

Lecture on Typhoid Fever.

By Alfred L. Loomis, M. D.

Gentlemen: We have already considered the antipyretic power of cold applications in the treatment of typhoid fever, and I will now call your attention to the antipyretic power of the sulphate of quinine.

When quinine is employed as an antipyretic, it must be given in large doses; the administration of two grains every two hours, or a larger quantity administered in divided doses within a period of twenty-four hours, will not act as an antipyretic; but thirty or forty grains must be administered within a period of two hours.

If the stomach is irritable, and you fear that a large dose will produce vomiting, ten grains may be given every half hour until the desired quantity has been administered.

Usually from four to six hours after the antipyretic dose has been taken, the fall in temperature will begin, and in about twelve hours it will reach its minimum height; then it will remain stationary from twelve to twenty-four hours. After the temperature has once been reduced by the quinine, its administration may be discontinued until the temperature shall again rise to 105°

F. As a rule, the temperature rarely ranges as high as before the quinine was administered.

This mode of administering quinine in antipyretic doses to fever patients rarely produces any symptoms of cinchonism, other than a transient deafness after the first dose. In a large number of cases the temperature can be kept below 103° F. by the sulphate of quinine; but in very severe cases it will be advisable, and sometimes it will be absolutely necessary, to employ not only the quinine, but at the same time the cold baths. My rule is, after I have reduced the temperature to 101° F., or 102° F., by a cold bath, to administer an antipyretic dose of quinine, and thus delay the recurring rise of temperature. While the cold bath more rapidly reduces temperature, the effect of the quinine is more lasting; consequently, by making use of both of these reliable antipyretics during the first two weeks, you will be able to control the temperature during that time. After this period it is not safe to resort to cold baths; but when the temperature rises above 103° F., occasionally you may use the cold pack in connection with antipyretic doses of quinine. If, during the third and fourth weeks, you fail to reduce the temperature by these means, administer during the twenty-four hours from ten to twenty grains of powdered digitalis—unless the pulse is very frequent and irregular—when its use is contraindicated. As an antipyretic, digitalis should be administered only when quinine is given. It seems to increase the antipyretic power of the quinine, but has little or no power when administered alone.

The use of all these antipyretic remedies must be persisted in, until the desired end—the reduction of temperature—is accomplished; but the peculiarities of each patient must be studied, and these agents must be so administered as to suit each individual case.

You cannot trust to the judgment of nurses and attendants, but you must determine for yourself what are the requirements in each case.

The satisfactory results obtained by the systematic use of these remedies justifies their employment; but the exact rules which are to govern one in their use, as to manner and time, can only be determined by experience.

All careful observers are aware that great danger attends prolonged high temperature; but it is still an unsettled question whether this danger is due to parenchy-

matous changes in the different organs, which some claim are the result of the high temperature, or to disturbance of the nerve centres from the same cause. Whatever may be the final settlement of the question, the beneficial results which follow the antipyretic treatment of fevers are generally admitted; and my advice to each one of you is, at the onset of your professional career to make yourself perfectly familiar with the use of these most important and reliable antipyretics.

If you can keep the temperature of your patient at about 103° F. during the first two weeks of the fever, you have accomplished the *first* and perhaps the most important thing in the treatment of this disease.

Towards the end of the second, or during the third week, sometimes earlier, sometimes later, signs of failure of heart power begin to manifest themselves; the pulse becomes feeble and irregular; at times the surface is cool and moist; the patient complains of a sense of exhaustion, perhaps is unable to turn in bed; the tongue assumes a dry, brown appearance, and the necessity of supporting the patient becomes apparent. This will bring you to the *second* important question in the treatment of this fever, namely, *what means shall be employed to sustain heart power*, or, as it is sometimes said, the vital powers of the patient?

When a patient, during the second or third week of the disease, dies from capillary bronchitis, pulmonary œdema, or suddenly passes into a state of coma, failure of heart power is the real cause of death.

In those cases in which, during the early part of the fever, you have been compelled to resort to a vigorous antipyretic treatment, during the third week, although the temperature may not rise higher than 101° F., the pulse fequently becomes extremely feeble, and reaches 140 per minute, the first sound of the heart becomes inaudible, muscular tremors, dry tongue, and all the phenomena which indicate failure of vital power, are present. Under such circumstances the use of stimulants seems to be urgently demanded.

There are a few simple rules which may guide you in the administration of stimulants in this fever.

First.—They should never be administered indiscriminately—that is, never give a patient stimulants simply because he has typhoid fever.

Second.—When there is reasonable doubt as to the propriety of giving or withholding stimulants, it is safer to withhold them, at least until the signs which indicate their use become more marked.

Third.—In every case, but especially when stimulants are not clearly indicated, watch carefully the effect of the first few doses. There are few whose experience in the treatment of typhoid fever is such as to enable them to positively determine, from the appearance of the patient, when the administration of stimulants should be commenced.

Should you commence the administration of stimulants, it is necessary to see your patient every two hours, and note carefully the effect produced. If you find the tongue becoming dry, the patient more restless, the delirium more active, the temperature ranging higher, and the pulse more and more rapid, you may be certain that stimulants are contraindicated. If, on the other hand, the pulse becomes fuller and more regular, if the first sound of the heart is more distinctly heard, or, if it has been absent, it has returned, if the restlessness and delirium is less marked, the tongue more moist, and the patient more intelligent, you may be certain that the time for the administration of stimulants has arrived. When you have commenced their use, it is of the greatest importance that you administer them at stated intervals, especially during the night.

In a severe case of typhoid fever, a free administration of stimulants, just at a critical period (which may not last more than twenty-four hours), will often be followed by a refreshing sleep, and your patient may rapidly pass from an apparently hopeless condition to one of convalescence.

The *third* important thing to be accomplished in the management of typhoid fever patients is the maintenance of nutrition. You must bear in mind that the primary and principal effects of the typhoid poison are manifested in the changes which take place in the lymphatics of the gastro-intestinal tract. Experience has taught us that the enfeeblement of the digestive and assimilative powers, due to these glandular changes, which are manifest from the very commencement of the fever, renders the digestion of solid food impossible, and for a long time it has

been the rule of the profession to allow typhoid fever patients only liquid food.

There has been and still is great diversity of opinion in regard to the special articles of diet best suited to this class of patients. Most medical writers and practitioners claim that beef-tea is the proper diet for fever patients; consequently it is the rule to pour into these enfeebled stomachs a decoction of beef in such quantities as a healthy stomach could hardly tolerate, and which in itself has little or no nutritive element.

Others claim that gruels are far superior to animal broths, and advocate the feeding of fever patients with gruel made of barley and other farinaceous substances, to the exclusion of every other article of diet; yet gruels furnish few elements essential to the nourishment of a physical organization struggling against a subtle poison, and rapidly wasting with a burning fever, and starvation is the necessary result of a restriction to gruel diet.

There is no disease in which a waste of all the tissues of the body goes on so rapidly as in typhoid fever; and milk is an article of diet which furnishes the elements of nutrition necessary to repair this rapid waste, and there are not the objections to its use which there are against animal broths and gruels. Although there have been, and still are, in some quarters, strong objections against its use as an article of diet in fevers, recently it has been regarded with more favor, and those who have had most extended opportunities for testing its nutritive qualities have come to regard it as the only article of diet required by fever patients. In it we not only find all the elements required for repairing the rapidly wasting tissues, but they are in a condition to be most readily assimilated by the enfeebled digestive apparatus.

In order to make the milk more digestible, it may be diluted with lime-water. The lime-water is an antiseptic, and allays irritability of the stomach and intestines. The quantity of milk is not limited; the patient may take all his stomach will digest—usually patients will take from four to six quarts in the twenty-four hours.

After the patient has passed into the fourth week of the disease, you may find it necessary to administer cream and the yolk of eggs in connection with the milk.—*Medical Record.*

Subcutaneous Osteotomy.

On Saturday, July 15, we were attracted to the London Hospital by a notice that Mr. Maunder would perform subcutaneous section of the femur with the chisel and mallet, to correct angular deformity resulting from anchylosis after hip-joint disease. Like many of our readers, we had made ourselves acquainted with what had passed at a recent meeting of the Clinical Society (May 12, 1876), when Mr. Maunder read a paper on this subject, and exhibited patients who had been operated upon in this way; but we wished to see the operation done, and the instruments employed for the purpose. These we will now describe as we witnessed them, for the information of those surgeons who are interested in the subject. Two patients were submitted to this treatment on Saturday—one was a young girl who for about seven years had been unable to put her foot on the ground. Disease of the hip-joint had ended in fibrous anchylosis, with the thigh fixed at an angle of 118° with the trunk. Thomas's splint had been tried for several weeks with the view of gradually straightening the limb, but no improvement had resulted. The other patient was a young man of fine proportions and well nourished, who had been sent up from Plymouth, with the express object of undergoing the operation. Disease of the left hip-joint had supervened upon fever, and had ended in fibrous anchylosis, with the leg at right angles with the trunk. Before commencing the operation, an assistant standing in front of the patient drew forward the soft parts. Mr. Maunder then measured the distance from the top of the trochanter major to the shaft at a level immediately below the small trochanter—this spot being selected because it is highest beyond the attachment of the numerous muscles which are inserted into the upper end of the femur. At this spot (and while the soft tissues are well drawn forward) he inserted a double-edged knife down to and at right angles with the bone on the outer side of the limb, cuts through the periosteum, and then, before removing the knife, introduces the chisel, which is also kept at right angles to the axis of the shaft of the femur. With a light wooden mallet the chisel is driven well into the bone, then partially withdrawn, to be again driven onwards, inclined somewhat obliquely forwards,

and then backwards so as to divide the bone in the rest of its thickness. While doing this the hand of another assistant is pressed upwards against the inner surface of the thigh, so as to make counter force to the direction of the penetrating chisel. Finally the limb is gradually and carefully extended, any small portion of bone which may happen to have escaped the chisel being at the same time broken down; lastly, a straight interrupted outside splint is applied.

The chisel—a separate one for each case—used by Mr. Maunder is three-eights of an inch in width at the cutting edge, where it is wider than elsewhere; and three inches and a half long in the shaft. The operation is attended with next to no hemorrhage, and the small wound in the soft tissues through which the chisel has been worked, becomes valvular and air-tight as soon as the tissues themselves are allowed to fall backwards into their natural position. A minute or two was the time required to complete the division of the bone in the case of the girl; in that of the man the process was longer, owing to the greater thickness and toughness of the bone. We are happy to state that up to the present time both patients are doing perfectly well.

Mr. Maunder showed to several visitors who had assembled to see the operation three cases in which it had been performed some weeks previously. All these three patients walked into the theatre—one man without the aid of stick or crutch—with limbs in nearly perpendicular position, and with little or no lordosis. There necessarily, however, remains some deformity about and around the hip-joint. This is easily understood when it is remembered that there is anchylosis at an angle, and in some cases it has followed so-called dislocation from disease: while, as the division of the femur is made below the small trochanter, there is no attempt to correct the abnormal position of the upper extremity of the bone.

Mr. Maunder stated that in most of his cases there has been no suppuration whatever after the operation, and that it was very limited indeed in the case in which it occurred. This entirely coincides with the experience of Professor Volkman, who also has employed the chisel instead of the saw. Professor Volkman, however, used three chisels, of different thicknesses, to prevent the jamming and sticking fast in the deeper parts of the incision into the bone. The

superficial part was divided with the stoutest, the deeper with a thinner, and the deepest with the thinnest instrument of all, so that the cleft was slightly wedge-shaped. Mr. Maunder, by a modification of the form of the chisel, finds it unnecessary to use more than one instrument.—*Med. Times and Gaz.*

Treatment of Chronic Eczema.

By HARRY CROOKSHANK, M. R. S. C., etc., Lansdowne Crescent.

In reply to a request on this subject, from a correspondent in the journal for July 15th, I think a few recent cases, illustrating the curative effect of carbolized oil in this painful disease, are well worth recording. I have used it in a great many cases with complete success. I may further add, that, although bathing in plain water frequently increases the irritation of the diseased parts, I have always found that bran-water (prepared by pouring boiling water on bran, and allowing it to cool), immediately relieves the smarting.

Case 1.—H. B., aged 50, plasterer and moulder, a strong, healthy man, rather intemperate, suffered from eczema of the phalanges of both hands, off and on, for several years. He came under my notice in January, 1875, when his hands had been bad for seven months, and he was quite unable to work. Both hands were very irritable, covered with deep fissures, and weeping freely. I ordered him to bathe his hands twice a day in bran-water, and apply lotio plumbi constantly, and to take a saline mixture with five minims of liquor arsenicalis three times daily. In a few days the irritation had all subsided, and he was then ordered to dress the fingers twice daily with lint soaked in carbolized oil (thirty minims of carbolic acid to one ounce of olive oil.) This treatment was continued for six weeks, when he was dismissed cured. He came under my care in June, 1876, with a slight attack of eczema of the right leg, which speedily gave way to treatment; the hands had remained perfectly free from the complaint.

Case 3.—J. S., aged 42, a baker and confectioner, very temperate man, always had good health, with the exception of an occasional attack of cracked fingers. He now suffered from severe eczema of all the phalanges of the left hand, which had been on him for several months. He

was ordered to take three minims of liquor arsenicalis in half a wineglassful of water after each meal, to bathe the hands frequently in bran-water, and rub the fingers well with carbolized oil night and morning. He was completely cured in three weeks.

Case 3.—Mrs. W., aged 36, at present under treatment, is the mother of several children, of temperate habits, rather inclined to corpulency, but otherwise enjoys good health. She has had eczema of all the phalanges of both hands for more than two months. The fingers are very red and swollen, with numerous fissures, which are extremely painful, and discharge watery fluid. She was ordered to bathe the hands frequently with bran-water, and then cover them with lint constantly moistened with lotio plumbi. The inflammation quickly subsided, and the usual carbolized oil was substituted for a lotion. She is taking internally a saline aperient mixture, and is rapidly getting well.—*British Medical Journal*, Sept. 2, 1876.

On Dilatation of the Uterus.

Dr. Lombe Atthill, in his address on Obstetric Medicine before the British Medical Association, says:

I am well aware that by some practitioners the dilatation of the uterus is still looked on with dread, and the attempt, if made at all, is undertaken with the greatest hesitation. I can only say that I believe these fears to be groundless, and that, if due care be taken to select suitable cases, and proper methods of carrying out the process be adopted, the treatment is a safe as well as a justifiable one. My own experience of the dilatation of the uterus has been great. I have practiced it very frequently, indeed, during the last ten years, and as yet, in no single instance has a bad symptom followed, nor have I even once been compelled to abandon the attempt. But I am far from throwing doubt on the accuracy of the statements made by others, who have recorded the occurrence of alarming symptoms, or even of death, as consequent on the attempt to dilate the cervix uteri; and I am quit pre-e pared for the possible occurrence of such, for all are aware that cases must occur in which the most trifling exciting cause will be followed by serious symptoms, though no grounds existed beforehand for anticipating the occurrence

of such. But these are exceptional, and, I believe, as a rule, that when serious symptoms arise, either during the process or in consequence of dilatation of the cervix uteri, they do either because an unsuitable subject has been selected in whom to practice the treatment, or an unwise method adopted for carrying it out. On examining the records of the cases in which serious or unpleasant symptoms followed the attempt to dilate the uterus, I find they have generally occurred when practiced—

1st. Either for the relief of dysmenorrhea depending on the existence of a narrow cervical canal;

2nd. When the cervical canal is encroached on by a fibroid of large size and unyielding structure;

3d. When the process has been attempted to be carried out rapidly by means of metallic dilators; or,

4th, When it has been protracted over several days.

I have, therefore, in order to guard as far as possible against the serious results recorded by others as following attempts to dilate the uterus, laid down for myself the following rules, which I can recommend with confidence to others:—

1. Never to dilate the cervix uteri for the cure of dysmenorrhea or sterility depending on a narrow cervical canal or conical cervix.

2. Never to dilate in cases in which a large and dense intramural fibroid presses on and partially obliterates the cervical canal.

3. Never to use metallic dilators of any kind, but to choose for the purpose either sponge or sea-tangle tents, which expand slowly and gradually.

4. Never to continue the process of dilatation for more than forty-eight hours. I prefer, in the few cases I have met with in which, after the lapse of that time, the cervix was not sufficiently opened to suit the purpose I had in view, to postpone all operative interference for some weeks rather than risk the result by prolonging the dilating process.

With respect to the first of these rules, I look upon the treatment of what is termed "mechanical dysmenorrhea" by dilatation as altogether a mistake. I doubt if any permanent benefit has ever resulted from it; while in several cases grave symptoms, and in one death, have, to my knowledge, followed the attempt. Equally, it is of importance not to prolong the dilating process. My own

experience in the treatment of uterine disease requiring dilatation leads me to this conclusion, that unpleasant symptoms are likely to occur in a direct ratio to the length of time over which the process of dilatation extends. Again, I have known death to follow the attempt to dilate the uterus in a case where a large fibroid, of dense structure, giving rise to menorrhagia, and causing intense pain, was developed in the uterus, and encroached on the cervical canal. In such cases dilatation is doubly objectionable, because the process is useless as well as dangerous; useless, because you will generally find that any attempt at operative interference from the interior of the uterus will be impossible; and dangerous, because inflammation is liable to follow, and that, too, in patients in the worst possible condition for resisting the attack.—*Med. Reporter.*

The Germ Theory of Disease and Vivisection.

On October 19th, Professor Tyndall opened the winter course of popular scientific lectures in Glasgow. He chose the process of fermentation as the subject of his address, and in connection therewith discussed the germ theory of epidemic disease. Two hundred years ago, he said, Robert Boyle wrote in his essay on the Pathological Part of Physic, "that he that thoroughly understands the nature of ferments and fermentatioas shall probably be much better able than he that ignores them to give a fair account of divers phenomena of several diseases (as well fevers as others) which will, perhaps, be never properly understood without an insight into the doctrine of fermentations." But it was only in this our day that men were beginning to realize the truth of these pregnant words. In the domain of surgery, Professor Lister, of Edinburgh, had demonstrated in his antiseptic treatment that the putrefaction of wounds was to be averted by the destruction of bacteria. Passing from surgery to the domain of medicine, he said the conviction was spreading and growing daily in strength, that reproductive parasitic life was at the root of epidmic disease—that living ferments finding lodgement in the body increased there and multiplied, directly ruining the tissue on which they subsisted, or destroying life indirectly by the generation of

poisonous compounds within the body. This conclusion, which came to us with a presumption almost amounting to demonstration, had been clinched by the fact that virulently infective diseases had been discovered with which living organisms were as closely and as indissolubly connected as the growth of torula was with the fermentation of beer. And here he wished to utter a warning to well-meaning people. We had now reached a phase of this question when it was of the very first importance that light should for once be thrown upon the manner in which contagious and infectious diseases take root and spread. To this end the action of various ferments upon the organs and tissues of the living body must be studied, the habit of special organism concerned in the production of each specific disease must be determined, and the mode by which its germs are spread abroad as sources of further infection. It was only by such rigidly accurate inquiries that we could obtain final and complete mastery over these destroyers. Hence, while abhorring cruelty of all kinds, while shrinking sympathetically from all animal suffering—suffering which his own pursuits never called upon him to inflict, an unbiased survey of the field of research now opening out before the physiologist caused him to conclude that no greater calamity could befall the human race than the stoppage of experimental inquiry in this direction. A lady whose philanthrophy had rendered her illustrious said to him some time ago that science was becoming immoral; that the researches of the past, unlike those of the present, were carried on without cruelty. He replied to her that the science of Kepler and Newton, to which she referred, dealt with the laws and phenomena of inorganic matter, but that one great advance made by modern science was in the direction of biology, or the science of life, and that in this new direction scientific inquiry, though at the outset pursued at the cost of some temporary suffering, would in the end prove a thousand times more beneficent than it had hitherto been. It was exceedingly important that such assemblies as that which he was addressing should see clearly the issues at stake in such questions as this, and that the properly informed common sense of the community should temper, if not restrain, the rashness of those who, meaning to be tender, would virtually enact the most hideous cruelty by the imposition of shortsighted restrictions upon physiological

investigation. It was a modern instance of zeal for God, but not according to knowledge, the excesses of which zeal an instructed public opinion must correct.—*Mail.*

The Therapeutics of Epilepsy.

By Allen McLane Hamilton, M. D., Visiting Physician to Epileptic and Paralytic Hospital, Blackwell's Island, New York City.

The object of this paper is the discussion of the present method of treating that most discouraging and imperfectly understood form of disease, epilepsy. I wish more particlurly to consider the value of the bromides, and at the same time to detail recent investigations undertaken to support a statement I made at the last meeting of the American Neurological Association, where I advocated the *medium dose*, and endeavoured then to show that of late there is an unwise tendency to administer these drugs in dangerous quantities.

I may be pardoned, perhaps, in calling attention to certain practical points which may appear unimportant to some, but an experience gained from the management of a great many cases teaches me they are to be carefully considered in selecting a plan of treatment. These simple indications, I am covinced, are too often overlooked, even by painstaking and careful medical men. I allude to the necessity for discovering the exciting cause. I am every day made to feel that the idiopathic cases do not form so large a proportion as they were once thought to. With this belief I am satisfied that empiricism and routine management are bad methods. Any one who examines all his cases thoroughly will recognize the delicate shades in epilepsy, variations which are exhibited in other diseases presenting more pronounced and better defined symptoms; consequently there are evidences of pathological action, which are not always grouped alike, and consequently all cases are not to be treated in the same manner. I ascribe the moderate success I have had in the management of this disease to the recognition of these differences.

Not only may obstinate epilepsy result from masturbation, but it may be due to many of the diseases of women, and is produced by other eccentric irritations of various kinds, or by centric irritation, such as may be associated with toxæmia.

Sir Charles Locock (*Med. Times and Gazette, May 23, 1853,*) called attention to many cases that he had treated where uterine irritation was the exciting cause; and I think others have had the same experience. In one of Locock's cases the patient was particulary affected at the menstrual periods.

Some of these peripheral causes are curious in the extreme. Through the kindness of Dr. Gibney, of New York, I was enabled to see a child who had accidentally injured her ear with her parasol, the brass tip of which remained for some time imbedded in the external auditory meatus. As a result, convulsions of an epileptic character were caused, and it was not until some time afteward that the foreign body was discovered and removed. In another case I treated, the epilepsy was unmistakably due to a bad habit the woman had of wearing a number of heavy garments about her hips, which produced some uterine change. When this condition of affairs was noticed, and the skirts removed, she immediately recovered. At the root of many epilepsies, as well as other neuroses, are reflex causes—the starting point being the organs of digestion, or those contained in the pelvis. Of course there are varieties of epilepsy, of an idiopathic nature, or others caused by traumatism or organic disease; and these will defy the best directed efforts of the physicians, and we can do nothing.

Spencer Well's Method of Ovariotomy.

A correspondent of the *Boston Journal* describes the Spencer Well's method of ovariotomy. The one witnessed was the seven hundred and ninety-fifth operation:

"1. Those invited to attend were requested to sign a certificate that they had not been present within seven days at a post-mortem examination, visited a dissecting room, or treated a case of contagious disease.

"2. They were then, punctually to the moment appointed. taken to an upper chamber, with bright open exposure to the south-west, where Mr. Wells stood in readiness for his patient, who was already anæsthetized.

"3. Bichloride of methylene was the agent administered; or rather air charged with methylene by means of a caoutchouc pump.

"4. The lower extremeties were confined by a band across them; the upper ones by a strap to each wrist, the arm being brought down beneath the table and fastened to one of its supports.

"5. The abdomen was covered by a thin rubber sheet, with a circular opening adapted to the possible length of the incision. Beneath the table, to catch the fiuid contents of the cyst, or any thing which might drip, was an ordinary metallic hip-bath tub. Under the edge of the table, ıastened so as to be within immediate reach of the operator, hung Mr. Well's large spring-trocar, with a long curved arm, to which was attached a rubber tube of great caliber communicating with the tub beneath.

"6. None of the bystanders were permitted to examine or otherwise touch the patient.

"7. The incision was short, low down, occupying but a portion of the umbilico-pubic interval, and was completed on a director of peculiar form, broad towards its rounded extremity. These were extensive adhesions, which were broken down by the right hand with tolerable ease. Moderate hemorrhage occurred from their site, and from vessels in the line of incision. The cyst was multilocular, one of its cells containing a large amount of turbid fluid. Through the trocar-opening, sufficiently enlarged, Mr. Well's passed his hand and broke down such of the adjoining septa as would thus yield. The mass having thus been readily delivered, a stout, slightly curved steel clamp was attached to the pedicle, and on severing this the first stage of the operation was completed in ten minutes from the first stroke of the knife.

"8. The other ovary, though still small, proving cystic, was also removed, the base being transfixed by a double silk thread tied on each side.

"9. All coagula having been carefully removed from the peritoneal surface and pelvic cavity, the clamp was adjusted crosswise externally, and the wound was closed by seven stitches, the pedicle emerging between the last and the last but one. These sutures, like the ligature already described, were of Chinese silk, uncarbolized. They were passed through both the integument and the peritoneum, without, however, taking up the whole thickness of the abdominal wall, and during their tying, the loose pouch of the abdomen was bunched up, as it were. by the hand of an assistant. The threads were provided

with a needle at each extremity, the second of which was held by the operator's lips while the first was being passed, thus preventing twisting and other entanglement, and permitting greater speed.

"10. The wound having been closed, bits of lint were carefully placed under the clamp and between the sutures; the extremity of the pedicle outside the clamp was touched with solid perchloride of iron; the abdomen was covered with cotton-wool, over which was strapped broad bands of adhesive plaster; a binder of flannel was placed outside this, and the entire operation was completed in just half an hour from its commencement.—*Louisville Med. News.*

The Metric System in Prescriptions.

To the Editor of the Western Lancet:

SIR:—At the present time the metric system is used by scientific men, physicians included, nearly all over the civilized world, be it to express capacity, length, or weight. In the United States it has also been legalized for some time past already. French and German medical authors use it to the exclusion of every other system; so that, to read their works and comprehend them, it becomes necessary to be conversant with it. It does not complicate matters, but simplifies them, as will be seen from what follows. We now use ounces of three different weights, to wit: ℥ j. (avoirdupois), =437.5 grains; fl. ℥. j. =455.55 grains; and ℥ j. (troy), = 480 grains. Nor was this all. Before the almost universal adoption of this system every country had its own medical weight or weights, each one differing from the other. It is not necessary to give illustrations of this, for everybody knows it. In view of these facts, it is evident that it will do away with numerous totally different weights (as it has done wherever it has been adopted), and will substitute one, which will be easily deciphered, and represent the same quantity everywhere, making it possible for a prescription to be understood and correctly compounded by any competent apothecary in any part of the world. It cannot be questioned, but that it is a step in the right direction towards securing a universal medical "language," the desirability of which was so ably set forth by Dr. Edward Seguin, before the Cen-

differentiated them, through their non-vascularity, from the lymphfollicle. He considers the reticulum of great importance, and that it is similar to that observed in granulation-tissue.

Schueppel, in his work on "Lymph-gland Tuberculosis," says:

"Tubercle is a tumor, usually sharply defined, especially when small, which surrounds blood-vessels; it is made up of cells and of a reticulum similar to adenoid-tissue, in whose meshes the cells lie embedded. The cells are the important element, and may be differentiated into three distinct forms: giant-cells, large epitheloid cells, and small lymphoid cells."

He describes giant-cells as uniformly characteristic of tubercle. When single the cell is central, when multiple they may be irregularly dispersed with small cells between. The epitheloid cells make up a large part of the cell mass. He says:

"Their shape is four-cornered or round, often elongated or spindle-shaped. They have no distinct cell-wall. The protoplasma is granular, the nuclei are usually oval, diameter *mm.* .008 to *mm.* .015. They are pale, single in contour under high powers, and homogeneous, except for the nucleoli. These are small, highly refracting, and may be single or multiple. The nuclei are usually single, and are often constricted, being biscuit or bean-shaped. These cells bear a close analogy to many epithelial cells, and fill up singly or several together the meshes of the reticulum. They surround the giant-cells on all sides, and extend to the periphery of the tubercle. Lastly, the small round cells are of less importance, and are identical with lymph corpuscles."

So much for Schueppel.

Buhl and Koester attach great importance to the giant-cells, and consider them a constant product of tuberculosis. Herwig differentiates two forms of tubercle—reticular and endothelial, the former occurring in tissues altered by chronic inflammation, the latter in normal tissues. He admits the possibility of the absence of any one kind of cell, or even of the reticulum, in true tubercle.

Rindfleisch occupies a peculiar position. He considers that tuberculosis is closely related to scrofulosis; that its development depends upon the existence of this diathesis; that tubercular lesions cannot be sharply differentiated

from inflammatory changes, and that there is no such thing as specificity of tuberculosis.

We may then consider the presence of giant and ephithe-loid cells as indicating the existence of tuberculosis, or, following Rindfleisch, scrofulous inflammation. Schueppel, Koester, and Friedlaender have made valuable use of this fact in their researches. Three other elements in diagnosis assist us: the reticulum, the small lymph cells, and the nodule form of the neoplasm.

The origin of these various cells has been hitherto uncertain. Virchow considers that in retinal tubercle the giant-cells are proliferated fat-cells. Rindfleisch, Deichler, Buhl, Colberg, Manz, have called attention to the fact that tubercle arises in the immediate vicinity of a capillary, and that in the pia and choroid the cells may arise from those of the adventitia, while in the retina Rindfleisch ascribes their origin to the endothelium. Langhans thinks they are either the result of the proliferation of a single cell, or the welding together of several. From inoculation of tubercle in guinea-pigs, Klebs thinks the giant cells lie in the lumina of lymph-vessels. Koester agrees with Klebs, while, in liver tuberculosis, Wagner derives them from the liver cells, and Colberg from the cells of the capillary walls.

Schueppel, however, has found giant-cells in localities where no lymphatics exist; hence he believes that the giant-cells are developed from either emigrated leucocytes, or from the fixation and growth of some of the masses of protoplasm which are found circulating with the blood. He considers that the reticulum is a new formation, and the other cells are the offspring of giant-cells.

Herwig thinks that giant-cells are sections of lymph vessels, the nuclei representing the proliferated endothelium. The other elements he considers uncertain in their origin.

Buhl, in his letters on tuberculosis and phithisis, ascribes the origin of the cell elements to proliferated tissue-cells. He considers an origin from leucocytes or circulating protoplasts improbable. Rindfleisch, in late observations, agrees with Schueppel as to the intra-vascular position and endothelial origin of the giant-cells.

In a paper read before this Society at its meeting for May of the current year, a brief statement was made of the present condition of our knowledge of those wonderful

protoplasts, the leucocytes. Bearing in mind the facts then presented, I have now great pleasure in supplementing that paper by presenting to your notice the researches of Dr. Ernst Ziegler, first assistant to Prof. Edward Rindfleisch, of the University of Wuerzburg, made during the summer and fall of 1875. Having received a copy of his monograph, I take the earliest opportunity of acquainting you with his wonderful and important results.

Ziegler's researches were not originally directed to the investigation of tuberculosis, but were intended to study the changes through which the leucocytes passed after emigration.

The first *desideratum* was to devise means satisfying three conditions: 1st, Non-interference with cell metamorphosis; 2nd, Isolation from the rest of the organism; 3rd, Facility for microscopic examination. A hint was furnished by the observation of Rindfleisch, that when pieces of cork are allowed to remain in the peritoneal cavity, their pores became filled with emigrants, from which blood-vessels develop. Two conditions remained to be fulfilled: 1st, a capillary crevice allowing the use of high powers; and, 2nd, requiring no section cutting.

After several failures. the following plan was adopted; A piece of thin plate glass, 20 to 30 *mm.* long, 20 to 25 wide, had its corners and edges ground and polished, and a thin glass cover was cemented upon it by porcelain cement, applied hot at the four corners only. Thus is formed a capillary space open on four sides. These were placed in the peritoneum of dogs and rabbits, and examined after a variable interval. The early experiments failed, from the use of poor cement, which allowed the the covers to loosen.

The next series of experiments was uninteresting. In most cases no inflammatory changes occurred. In one case general peritonitis was excited by unclean instruments. Nothing was found in the capillary slits but wandering cells in retrograde metamorphosis. The peritoneum seeming to be unsuitable for investigation, glasses were placed in the pleura, pericardium, joint cavities, and under the periosteum, with no good result. The glasses were then placed under the skin and between the muscles, the incisions being closed with suture.

This third series was more successful, but in thirty-five cases two slides only were found in which progressive

metamorphosis had occurred. These contained vascular tissue and giant and epitheloid cells after fourteen days.

A fourth series was begun, dogs alone being used. The glasses were smaller, 6 to 20 *mm.* long, 8 to 12 wide, as larger ones frequently excite suppuration. The locations were the inside of the thigh, the abdominal wall, and the neighborhood of the scapula. The skin was incised, a cavity made by pushing the handle of the scalpel under the skin, a glass inserted, and the wound closed by suture. Union by first intention was usual, and suppuration rare. The specimens were removed from the 10th to the 25th day, even as late as the 70th. No swelling or infiltration was usually noticed after the 10th or 12th day; and, on incision at the 14th day, the glass was found surrounded by connective tissue. These specimens were unimportant. A few necrobiotic cells, with masses of hæmatoidin crystals, were found probably from entrance of blood during the insertion of the glass.

When the inflammatory swelling and infiltration of the tissue had lasted a long time without terminating in suppuration, the glass was found surrounded by a capsule lined with granulations. From such wounds, after sixty days, the specimens showed the development of giant and epitheloid cells from lymph cells. Preparations where suppurations had occurred exhibited only masses of puss-cells.

The tabulated list shows that of eighty-three preparations: twenty contained giant-cells, still fewer showed vascular tissue, while the majority had neither, but were found to contain only necrobiotic lymph cells. It seems best to divide the giant-cell specimens according to their age.

CONCLUSIONS IN REGARD TO TUBERCULOSIS.

If we compare the microscopic anatomy of tubercle with that of our experimental products, we must be struck with the essential similarity. True, giant-cells are not found in every tubercle, and they are found occasionally in non-tuberculous malignant growths. Still, if we remember that giant-cells are almost constant in tubercle, and usually absent in other neoplasms, we shall readily perceive that the presence or absence of giant-cells is of great importance in the study of a new formation.

Tubercular diseases are different from all other patholo-

gical processes, not in the fact that they produce giant-cells, but because certain previous conditions modify the course of the disease so as to lead to a giant-cell formation. If, then, we can excite a pathological process, and, by distinctly modifying its conditions, cause the production of the characteristic elements of tubercle; and if, at the same time, we know that the conditions under which the process occurs are also probably true for tuberculosis, we may draw the conclusion that elements which are identical possess the same origin and pass through the same develment. The anatomical differences between tubercle and the experimental products of Ziegler are too insignificant to be mentioned, as can easily be verified by any one who compares his plates with those of Schueppel. This is true of all the elements—the giant-cells, the epitheloid and lymphoid cells; but is wonderfully true of the reticulum, which resembles very perfectly the network of reticulated tubercle. We find the same arrangement of nuclei, the same size of meshes, and the same mingling of small round cells.

Since no anatomical objection can be urged against the identity of these tissues, a similar genesis is highly probable. In these experiments the same order of time is observed as in tubercle; the exudation of lymphoid cells produces, first, giant-cells, then epitheloid cells and a reticulum. These coincidences cannot be accidental.

Furthermore, if we remember that tubercle always arises close to a capillary or lympathic, we readily perceive the probability of its origin in a local diapedesis, whose cells do not undergo necrosis because the nutrient vessels are so near.

Schueppel, Billroth, Cohnheim and others have already announced this theory of the origin of tuberble, and Ziegler's observations have almost proved it. The theory may be formulated as follows: Tubercle is an accumulation of white blood-cells, with or without diapedesis, as it occurs outside or inside a vessel. Such a process is inflammatory, however, therefore: Tubercle is an inflammatory new formation, which differs from *all* others by non-vascularity, from most others by the development of giant and epitheloid cells, and a reticulum. These elements are not specific, for they occur in other neoplasms; they are sometimes absent even in tubercle, and very rarely even the miliary form of lesion is absent, thus

peri-vasculitis of the pia-matar occurring in scrofulous children is untoubtedly tuberculous, but the histological landmarks are sometimes entirely wanting. The same is true of interstitial hepatitis occurring with general tuberculosis. Another example is the peri-vascular large-celled infiltration of the alveolar septa in chronic pulmonary phthisis, which is recognized as tuberculous by both Rindfleisch and Buhl.

The miliary arrangement is explained by the hypothesis of a local irritation. In septicæmia, decomposing particles, circulating in the blood, produce miliary abscesses where they chance to rest; in tuberculosis a less irritation produced in the same way results in non-suppurative inflammatory foci, which go on to tissue formation.

Ziegler agrees with Von Waldenburg in comparing tuberculosis with pyæmia, and associates them as diseases arising from absorption of irritating material, as shown by inoculation of tubercle.

These inflammatory foci would not be found in a healthy human being, but occur as the result of diathesis. Schueppel believes that certain individuals are liable to become tuberculous at the end of any inflammation, and Rindfleisch states that he has uniformly observed the peculiar large-cell-infiltrated character of all inflammations occurring in tuberculous individuals, and their tendency towards necro-biosis.

This diathesis is considered by Rindfleisch to be identical with the so-called scrofulosis, in which spanæmia and a yet unknown and hypothetical alteration in the blood produces a peculiar effect upon the blood-cells and vessels, facilitating the production of new non-vascularized inflammatory foci (tubercle),. through the irritation of particles absorbed from any old inflammatory deposit.

We have no accurate knowledge as to why the tuberculous focus is not vascular, and observations hitherto have thrown no light upon the subject.

We must be satisfied with the conclusions that in certain individuals, known to us as scrofulous, an irritation producing inflammation will evolve inflammatory changes histologically classified as tuberculous; that if, in a healthy animal, we excite inflammation, and modify it by preventing or postponing the vascularization of the exudation, we can produce the same elements as in the previous case; we therefore infer from this similarity of

results, that scrofulosis exercises a peculiar influence upon the progress of inflammations, and causes their products to appear tuberculous, and that tuberculous inflammation is generally identical with scrofulous inflammation.

Dunkirk (New York) Microscopical Society.

Regular meeting, Dec. 8, 1876, President Dr. Geo. E. Blackham in the chair.

In spite of a severe storm, there was a good attendance of members and visitors. After the transaction of routine business, correspondence was read from Prof. J. Edwards Smith, Henry Mills, Esq., and Geo. E. Fell, Esq., corresponding members; and from Sam'l Lockwood, Ph. D., Sec'y New Jersey State Microscopical Society.

The President spoke of his visit to the Buffalo Microscopical Club, and of his kind reception.

The Secretary, Dr. Alling, reported contributions to the Library and Cabinet as follows: *Field and Forest*, for May, July, and October, 1876, by Lieut. W. L. Carpenter, U. S. A.; *Tribune*, Extra, No. 36, containing Huxley's American Lectures; and *Buffalo Medical and Surgical Journal*, Dec., 1876, by the President; a quantity of *Fingis Hyaline*, unmounted, also a quantity of Peristomis *Optunaria Hygrometrica*, by Prof. J. E. Smith.

The scientific session was opened with a lecture by Prof. E. L. Mark, Ph. D., on *The Protista*, which he described as the lowest form of living things, belonging to neither the animal nor vegetable kingdom, but partaking of the characters of both. The difficulty of classifying has been in a measure overcome by Prof. Hœckel, who has suggested the creation of a new kingdom, to be called the "Protista." Several typical specimens of this kingdom were described.

The *Protamœba Primitiva* is the lowest known type of organism; it walks without feet, eats without a mouth, digests without a stomach, feels without nerves, and without procreative organs reproduces its kind. The speaker went on to describe several other forms in the order of their degree of development, up to the form in which differentiation of cell structure and function are fully established. He then described the development of the

sponge, from the ovum to the perfect animal, and pointed out the parallelism existing between the various stages of the development of the sponge and the various forms of the Protista, and the bearing which this had upon the doctrine of evolution. While Darwin has demonstrated the probable existence of a law governing the variations of species and genera, Hœckel has pointed out the manner in which variation is actually accomplished.

The lecture, which was extremely instructive and interesting, was fully illustrated with large drawings on the blackboard, and by colored diagrams.

A vote of thanks was unanimously voted to the Professor for his lecture.

After a discussion or the principal points in the lecture, the meeting adjourned. C. P. ALLING, M. D., *Sec'y.*

Fairmount (Philadelphia) Microscopical Society.

The last meeting was held on the 18th inst. The Secretary exhibited a specimen of Caprella, recently collected at Atlantic City, and read a paper on its anatomy, habits, and peculiarities. Among the other interesting objects exhibited, were slides of Marine Algæ, covered with diatoms, two slides of the "silver fern," and one of the Cincinalis nivea. W. C. STEVENSON, *Secretary.*

San Francisco Microscopical Society.

A stated meeting of the Society was held on Thursday evening, January 18th, with President Ashburner in the chair. Owing to the "blessed rain," the rooms were not crowded; but, beside a dozen members, Messrs. E. A. Burdick and S. R. Palmer were present as visitors.

The Secretary announced the receipt of the January number of *American Journal of Microscopy*, and two copies of *Flora*, by subscription, and a "Report of the Standing Committee of the Boston Society of Civil Engineers on Metric System," by donation from that organization.

Mr. J. R. Scupham presented a quantity of diatomaceous earth, obtained by him from Fort Hill, Los Ange-

los, which was examined somewhat hastily during the evening, and found to contain great quantities of fragments of *Coscinodiscus*.

Mr. E. A. Burdick exhibited a slide mounted by himself showing a minute portion of the thallus of a marine Algæ, from Monterey Bay, to which was attached four species of diatoms. One of them, a *Hyalodiscus*, would not reveal its beautiful markings till quite a high power and proper illumination was brought to bear, when it surrendered, and its fine and well-defined lines reminded the observerer of the lathe work on the back of a watch-case.

Col. Kinne exhibited several slides from his box of duplicates, one of antelope hair in balsam, showing the peculiar cellular structure of the investing membrane, and enlarged medullary portion, which, though not new, attracted considerable attention.

The President announced that the next meeting would be the annual meeting of the Society, and he hoped to see a full attendance. As the President's annual report is handed in then, together with those of the Treasurer and Librarian, and the election for officers for the ensuing year takes place, no doubt the wish will be gratified.

PRIVATE LETTER.—We stated recently that we were never in the habit of publishing private letters, but receiving one from so distinguished a physician and microscopist as the one whose name is here appended, our egotism prompts us to break through our rule and print a portion of his letter.

" *Philadelphia, Feb. 8, 1877.*

" DR. THACKER;

" *My Dear Doctor*—It has been on my mind for some time past to ask that my name might be placed on your list of subscribers to the CINCINNATI MEDICAL NEWS, if you will allow it.

" Your journal appears to be the only one in our country vigorous enough to say any thing on microscopy, and in my opinion we need a medium of communication on such subjects which will *ably* and *impartially* enlighten us therein. Very truly yours, J. G. HUNT."

Dr. Hunt promises to becomes a contributor to the MEDICAL NEWS.—ED.

Erratum.

PROF. THACKER; DUNKIRK, FEB. 5, 1877

Dear Doctor—There occurs two errors in my paper, published in your January number,—viz., page 44, 15th line from bottom, $\frac{1}{280}$ should read $\frac{1}{210}$; same page, 8th line from bottom, $\frac{1}{280}$ should read 210 (a whole number).

These errors were my own, and occurred in copying the M. S. Yours, truly, GEO. E. BLACKHAM.

THE NERVOUS SYSTEM.—Dr. Harley states that the study of the tissues belonging to this system will be much facilitated by a judicious selection of specimens. In order to obtain a view of an entire nerve, one of the small cutaneous dorsal branches should be taken from the frog, by dividing the skin of the back carefully along the centre of the spinal cord, avoiding to cut the roots of the nerves.

On reflecting back the integument the small superficial nerves will be exposed to view, like so many fine threads, extending from the muscles to the skin. A portion, about one-eighth of an inch, of one of the smallest of these is to be cut off with fine scissors, placed in a drop of water on the slide, and gently drawn into a straight line by the aid of the needles; the thin glass cover is then to be applied, and the specimen at once examined with a low power.

The object is an exceedingly beautiful one if well prepared, consisting of a sheath of areolar tissue, with a brindle of nerve fibres in its centre, and frequently a small blood vessel enclosed in the same sheath. The addition of a drop of acetic acid will render the sheath much more transparent, and, after a fews econds, bring into view the "connective tissue corpuscle." The nerve will generally appear crooked, this arises from the contraction of the fibrous sheath, which had previously been stretched, but after being cut shrinks considerably and causes the appearance observed.

AMERICAN OBJECTIVES IN ENGLAND.—Mr. John Anthony, an English microscopist, in a letter to Mr. Tolles, speaking of a $\frac{1}{25}$ which that gentleman had sent him, says, that every person who had examined it, pronounced it "superior to any objective of similar high-power yet seen in England."

We have had sent us three micro-photographs, of *am. pellucida*, by two of Tolles' *three system* glasses, which prove them to be capable of the finest work as well as his famous *four system*, or duplex fronts. Two of them are by a $\frac{1}{25}$ immersion, one of which was photographed by Dr. Woodward. Both exhibit the markings as clearly and as well defined as would be the lines on a butterfly scale by a competent lens. The one by Dr. Woodward is darker, with the markings more robust than those of the others, and is certainly as beautiful a specimen as we ever had the pleasure of seeing. The lighter one is of 2050 diameters; the one by Dr. Woodward is greater.

The photo taken from the $\frac{1}{12}$ immersion, is 2250 diameters by a five inch amplifier. Although by a lens of half the power, with the magnification greater, the markings are as distinct and as well defined in every particular as by the $\frac{1}{25}$.

These photographs show well the great excellence of the objectives.—Ed.

Miasmatic Algæ.—MM. Lanzi and G. Terrigi have published at Rome an account of observations on the microscopic fauna and flora of the marshes in the Campagna, and endeavour to show that there is a connection between the product of changes in the cells of certain algæ and the cause of malarial fever. Dark granules form in the cells, which at last they fill, and then the algæ rot. They cultivated the plants in an aquarium, and followed the process in all its stages. The algæ develop in the marshes which are formed in winter and spring. When the moisture disappears under the heat of summer, the surface of the ground is left covered by a layer of stinking algæ. The same conditions are found, although not to the same extent, even where there are no marshes, the uncultivated ground being covered, more or less, with putrefying vegetable matter. The authors believe that the dark granules act as a ferment. They are found in the atmosphereic dust of the Campagna, from which they can be developed abundantly by cultivation. Lanzi believes that they are identical with the pigmented sphærobacteria of Cohn and the bacteridium brunneum of Schroetter. The authors assert that the pigment-granules found in the liver and spleen of persons who have suffered from malarial ca-

chexia are similar to the granules from the algæ cells; and Lanzi affirms the identity of the malaria melanin of pathological anatomists with the granules which result from the the decomposition of these plants. The germs were found in the atmosphere of the Campagna to a height of fifty centimeters above the surface of the marshy soil. Lanzi found abundantly malaria-melanin in the liver and spleen of guinea-pigs which had breathed for a considerable time air of the marshes which contained these organisms.—*British Medical Journal.*

Diatoms.—We have received from Mr. C. L. Petticolas, of Richmond, Va., a number of slides of diatoms from the earth of Richmond and Petersburg. Our readers undoubtedly have learned how rich these two places are in diatomaceous deposits. Ehrenberg assigned to the first 112 species, and subsequent researches have shown it to be the richest deposit of the kind in the world.

"From the great variety in the markings on these valves, a slide of the earth, properly prepared, becomes one of the best and most interesting tests for the performance of objectives, from the lowest to the highest powers in use. On some of them, for instance, the areolations may be seen with a simple triplet, magnifying 25 linear; while on others a first class 12th or 16th, of wide angular aperture, aided by all the modern refinements of illumination, is needed to show them."

Subscribers should notice the advertisement in our advertising form.

Personal.—We are under obligations to Mr. Walmsley, of James W. Queen & Co., of Philadelphia, for the privilege of examining certain microscopic accessories from the very large and varied stock of that house. They have every thing in that line constantly on hand.

Gleanings.

Biliary Salts. Their Action.—Drs. Feltz and Ritter (*London Lancet*, September, 1876) have made some very careful experiments, bearing on the action of the biliary salts. They found that by injecting into animals small doses of a mixed solution of glycocholate and taurocholate of soda in the same proportions as in normal bile, a patho-

logical state could be induced which lasted for five or six hours only, and was marked by bilious vomiting, diarrhea, a slow pulse, and a slight reduction of temperature, and the frequency of the respirations.

The slowness of the pulse, and the diminished arterial tension, were most marked soon after the injection of the bile acid, but persisted for some time after their elimination. The phenomena were next shown to occur after both the vagi and sympathetics were divided. Hence they are independent of any special action on the nervous system, unless on the cardiac centres themselves. When the heart was removed from the body, and allowed to imbibe the solution of the bile salts, its movements became irregular and then ceased altogether. Ordinary muscular fibre also refused to contract in a quarter of an hour after the same solution was dropped on it, while if a solution of chloride of sodium of the same strength was substituted, its contraction was quite vigorous and energetic after a longer interval. Thus the independence of any nervous influence was decisively shown. This special paralysing effect on a muscle at once explains the slow pulse, the weak cardiac contraction, the dimunition of the arterial tension, the lowering of the temperature, and the lesssened number of respirations. Further, it was shown that the bile solution retarded the movements of the blood corpuscles. In this way we have the data for more precise explanation of the effects of jaundice.

Variations in the Type and Prevalence of Skin Disseases in Different Countries of Equal Civilization.—After hearing and discussing a paper on this subject by Dr. James C. White, the Dermatological Section of the International Medical Congress adopted the following conclusions:

1. Certain obscure affections, the etiology of which is little if at all understood, even in those parts of Europe to which they are mostly confined, may be regarded as practically non-existent among us—of which are *prurigo*, *pellagra* and *lichen exudations rubra*.

2. Certain diseases directly connected with and dependent upon poverty and habits of personal uncleanliness are less prevalent in the United States than in those parts of Europe of which we have sufficient statistical information for comparison. Examples of this class are *animal parasitic affections* especially.

3. Some cutaneous affections, of grave character, which are dependent upon or a part of serious constitutional disorders, are of less frequent occurrence and of milder type among us than in Europe in general, or those parts of it where they are endemic. *Lupus*, the *syphilodermata* and *leprosy* are the most marked instances of this class.

4. Certain disorders of the skin, especially those of its glandular system and those connected more immediately with its nervous system, are apparently more prevalent with us than in Europe. The most notable examples of the former are *seborrhœa acne*, and possibly the heat rashes of the latter, *herpes urticaria* and *pruritus*.

5. The type of certain acute congestive and nervous diseases of the skin is more severe in this country than abroad.

Congenital Striped-Muscle Sarcoma of the Kidney.—The kidneys (*Virchow's Archiv*, Bd. lxv.) were from a child which was healthy during the first twelve months after birth, then sickened, and died three months later. Both kidneys were invaded by tumors, which were found on microscopical examination to be composed of striped muscular fibres. The fibres were small, long, and interwoven. A sacrolemma was not discovered. In other parts, but not so plentifully, the typical structure of a sarcoma was found. This is the first time that these very rare tumors—striped muscle sarcomata—have been found in the parenchyma of the kidney, where their presence constitutes a veritable monftrosity. The fact that both kidneys were affected tends to show, according to Cohnheim, that there was an original faulty growth, and not a metastasis. It is impossible to understand what the histological elements were that formed the point of departure for the muscular fibres.—*London Med. Record.*

Cincinnati Obstetrical Society.

A Society bearing the above name has been recently organized in our midst, by a few medical gentlemen, interested more particularly in obstetrics and the medical and surgical disease of women. Its privileges are not for the specialists alone in this field; but also for those who, though having a preference for this department of medicine, yet do not make it a specialty.

Although the idea of forming such an organization had at various times during the past year been broached by three or four physicians, who were sanguine that such organization would succeed; yet it was not until the 9th of last December that it took shape, in the gathering of a small number of medical gentlemen, for the purpose of considering the feasibility of forming an Obstetrical Society. That informal gathering took place at the rooms of Dr. Reamy. A temporary organization was effected by the election of Dr. A. J. Miles, Chairman, and Dr. J. W. Underhill, Secretary. The practicability of forming a society for the promotion of obstetric and gynecological science was discussed at length by Drs. Reamy, Carrick, Palmer, Miles, and Underhill. Without arriving at a definite conclusion, the temporary organization adjourned to meet one week subsequently. At the second meeting other gentlemen were present, in addition to those who had attended the first informal gathering. The question of attempting a permanent organization was still further and more thoroughly discussed—the discussion being participated in by Drs. Reamy, Quinn, Palmer, McMechan, Cleveland, Miles, and Underhill; finally the motion "that we organize an Obstetrical Society," was put and carried, and a Committee, consisting of Drs. Reamy, Quinn, and Underhill were selected to draft a Constitution and By-Laws.

December 23, 1876, the third meeting was held, when the Committee on Constitution and By-Laws made their report. After various modifications of the different articles, and much discussion, the Constitution and By-Laws were adopted seriatim, and finally in their entirety. A permanent organization was now effected by the election of—

Dr. J. J. Quinn, *President.*
Dr. A. J. Miles, *Vice-President.*
Dr. J. W. Underhill, *Recording Secretary.*
Dr. C. O. Wright, *Corresponding Secretary.*
Dr. J. L. Cleveland, *Treasurer.*

Dr. Quinn, upon taking the chair as the first President of the society, made a brief, but very felicitous address.

The first stated meeting of the Society was held at Dr. Reamy's rooms, Thursday evening, January 11, 1877. At that meeting the paper for the evening was read by Dr. McMechan. Subject; "Delivery by External Pressure." Its discussion was lengthy, and participated in by nearly all the gentlemen present.

The second stated meeting was held at the residence of Dr. Miles, Thursday evening, the 8th inst., and an interesting paper was read by Dr. Cleveland, upon "Hypertrophied Cervix," which gave rise to an animated and lengthy debate.

The Cincinnati Obstetrical Society holds its regular meetings the second Thursday of every month, and they are domiciliary, being held alternately at the residences of the various members. It is composed of two classes of members: active and honorary. The former are limited to *twenty* in number, the latter to *ten*. By thus restricting the membership to so small a number, it is believed that better work, and more of it, will be done than if no such restriction existed. The five officers of the Society are constituted a Council, to whom all applications for membership must be made in writing, favorably endorsed by two active members; the application must also be accompanied by an essay from the candidate upon some subject, embraced within the purposes of the society. The Council has sole power of making nominations, except under certain conditions specified in the constitution, when an appeal may be had from their decision; and, if the appeal be sustained, the nomination may then be made by any member. This body is also constituted a tribunal, before which shall be tried any member for an alleged offense against the Constitution and By-Laws, or for conduct unbecoming an honorable physician.

As the author of every paper is required to announce its title one month prior to the time at which it is to be read, the members have therefore sufficient time within which to examine the subject preparatory to its intelligent discussion. No paper is permitted to be read before the society, which has already been printed, or been read before another body.

It is not believed that the banding together of so small a number of medical gentlemen will appreciably impair the efficiency of either of the medical societies already in existence in our city. The Obstetrical Society meets but once a month, and its members who happen to belong also to one of the older societies, will in our opinion, take more interest in the original society of which they are members, than if they were not members of the new organization. We have often observed that the more papers a physician writes, the more he wants to write; his interest is increased; and if he belongs to two or three

medical societies he will be likely to do more work in each of them than he would in one alone. Several cities of our country have obstetrical societies, some of which are in a flourishing condition, and we have little doubt that the one under consideration will do valuable work. There is room for it, the time for the organization was ripe, and its members have performed a duty which they owed to themselves, to the profession in general, and to the profession of Cincinnati. *

Book Notices.

The Art and Science of Surgery. By A. J. Howe, A. M., M. D., Prof. of Surgery in the Eclectic Medical Institute. 8 vo. pp. 886. 1877.

Prof. Howe is becoming somewhat prolific in book-making. Within a short time we have had by him a Treatise on Fractures and Dislocations, afterwards a work on Eye Surgery; now one on Surgery.

The work before us is one of considerable merit. The elucidations of surgical diseases are clear and easily understood, and the modes of treatment laid down are generally correct, being in accordance with established principles. Physicians who have necessarily very considerable surgery to attend to will find it well adapted to their wants, probably more so than many of the fuller and more learned works.

The work would present a better appearance if it was printed on heavier and more compact paper. The thin cheap paper used permits the cuts to show through, which should not be the case. The illustrations, too, in not a few instances, are of a rude character, although they may answer the purpose. We would advise that in future editions more artistic ones be substituted, for it is a pity to spoil a good work with such unartistic affairs.

Cranial Nerves.—We have been shown a diagram or scheme of the cranial nerves, as taught by Prof. M. L. Amick, of the Cincinnati College of Modicine and Surgery. It is very much superior to any thing of the kind we have heretofore met, and should be in the possession of every physician.

It is 17 by 22 inches. Appropriate columns (8 in number) give the classification of Willis and Sœmmering, name,

history (as derivation of name, etc.), origin of nerve, foramen of exit, principal distribution and function. At a glance, in almost less time than would be required to reach to a shelf and take down a work on anatomy, without saying any thing about opening it and turning over the leaves, all desirable information about any one cranial nerve, or all of them, can be had. In these days when every moment of time is precious it is a desideratum.

AMERICAN JOURNAL OF MICROSCOPY, 1876—We have received the volume of this journal for 1876 bound, published by the Handicraft Publication Co., New York, and edited by John Phin, Esq., editor of the *Technologist.* Not until the beginning of 1875 by the MEDICAL NEWS, and a year later by the *Americvn Journal of Microscopy*, has an attempt been made, which proved successful, to establish a medium of communication in this country for microscopists, in which microscopical observations could be recorded.

The A. J. M. does great credit to its editor and publishers, and should be patronized by all microscopists.

Dr. M. B. Graff.

At a meeting of the Academy of Medicine, held Saturday, February 5th, the following resolutions were passed:

"WHEREAS, It has pleased the Almighty to call from this sphere our brother, Dr. M. B. Graff; and,

"WHEREAS, Dr. Graff, though a young man, had attained a high position in the profession, and gave great promise for the future; therefore be it

Resolved, That the Academy of Medicine deplore, in his untimely death, the great loss to the profession.

Resolved, That this Academy express to the family their sympathy in its great affliction.

Resolved, That these resolutions be spread upon the minutes of the Academy, and published in the medical journals of the city.

"H. ILLOWY,
"J. C. MCMECHAN,
"R. B. DAVY, } *Committee.*"
"A. J. MILES,
"A. HOELTGE,

Editorial.

First Conviction under the Vivisection Act.—The Cruelty to Animals Act, 39 and 40 Vic., c. 77, came into operation on Aug. 15th last. Three days later Dr. Abrath, of Sunderland, issued a large placard headed "The Balham Mystery," announcing his intention to deliver a lecture at Sunderland on "Antimony," when he would perform experiments on animals to show the effects of poisons, and to demonstrate his theory that Mr. Bravo was killed by that drug. The branch of the Royal Society for the Prevention of Cruelty to Animals at Sunderland, immediately reported the matter to the secretary in London, and prompt measures were taken to prevent the learned gentleman from performing his experiments. According to the 6th section of the statute named above an offence had already been committed by the announcement of a public exhibition of experiments on animals; and Dr. Abrath having spoken contemptuously of the new statute at his lecture, instead of apologising for his projected defiance of the act, was summoned to appear on Thursday before the Sunderland Borough Bench at the instance of the London society, when he was fined 1s. and costs for publishing the illegal placard alluded to, the society asking only for a nominal penalty in vindication of the law.

The Late Dr. Bultkens and his Royal Patient.—Recent foreign journals announce the death of the eminent Dr. Bultkens, the founder and director of the lunatic colony of Gheel, in Belgium. In this village the insane patients are lodged in private houses, work in the fields, and walk about without any apparent surveillance. This system is said to have been marvellously successful. The director, at any rate, had the reputation of having cured more patients mentally afflicted than any other physician in Europe.

Dr. Bultkens was the special attendant of the unfortunate Princess Charlotte, sister of King Leopold, and once Empress of Mexico. The case of this patient is very curious and is perhaps unique. Dr. Bultkens has always declared her recovery to be beyond hope, but her physi-

cal health is remarkably good, and her beauty, it is said, has become more striking since her affliction than before. She apparently never recognizes the physical presence of any of the people around her. She never converses with them, never notices any words addressed to herself, but holds constant conversation with beings whom she believes to be present, speaking to them, and apparently listening to their replies. Dr. Bultkens was the only person to whom she would ever speak, and her conversation with him was invariably limited to the phrase, *On se porte bien*, in reply to his inquiry concerning her health, after which she would turn her back on him and regard him no more.

She gives her orders for dinners, for dresses, or for anything she requires always in writing, depositing the paper always in one place. If her instructions are not exactly filled, she remarks on the defect, likewise in writing, not with any appearance of anger, but merely as if she considered it a duty to point out the omission.

As an example of the minute attentions which are bestowed upon this royal patient, it has been stated lately that a special number of the "Almanach de Gotha" is produced every year expressly for her. In it the Imperial Court of Mexico is included in its place, with portraits of the Emperor and Empress, just as if nothing had occurred since 1867.

RUMORS.—It is rumored that there will be a medical college in Toledo, Ohio; of course this will soon be followed by another. One brand new medical college has just been organzed in Nashville. Rumor speaks of one to be projected in New Albany. Fort Wayne has just undergone the throes of parturition; so there is an infant school there. The air is thick with rumors of other medical gentlemen being ready "to supply a want" by opening medical colleges elsewhere. It is said that if physicians would only charge each other's families for services rendered, this act would check the new college mania. At present, men find it economical to study medicine to enjoy freedom from physicians' bills. If any one desires to cease paying doctors' bills, he has only to become a doctor. The best countermovement is for every physician to charge every physician's family for medical

services given!! If this is not done, there will soon come a social condition, when, if it can not be said that "every man's his own doctor," it can at least be declared that every man is his neighbors doctor. Indeed, it seems that the great millennium is near at hand; all are to be doctors, and therefore all are to be good and perfect men!

Here is the cure for these evils; each reader should read it carefully and remember it. Separate the teaching and licensing powers. Let there be one well-paid Licensing Board for each State, and then physicians everywhere who "feel that there is a want" for a college can organize one; so that each city and town and village and cross-roads settlement can have its own "medical institution." With one licensing power only in each State, it matters but little how many colleges there be; the survival of the fittest would be the inevitable result, and a great blessing. At present all is chaos, and doubt and uncertainty.

Societies, and physicians not in societies, should each and all agitate this serious question, and secure the great safeguard for each State; an independent Licensing Board disassociated from all other medical colleges.—*American Med. Bi-Weekly.*

The Eclectic Magazine.—This magazine is published monthly, by E. R. Pelton, 25 Bond street, New York. It consists of selections principally from the best English Magazines, Reviews and Quarterlies. All of the articles are of the highest order, being the products of the best minds. No one who desires to keep himself posted in those subjects which are engaging the thoughts of the greatest living thinkers, can do without it. Price $5 a year.

Popular Science Monthly.—This magazine is constantly increasing in popularity. The design of the work is to popularize science, and, therefore, it presents each month such articles as are calculated to increase the knowledge and enlighten the minds of its readers. The lectures and essays of Profs. Huxley, Tyndall, Beale, Herbert Spencer, and other distinguished naturalists and philosophers, find places in its pages. Published by D. Appleton & Co., New York, at $5 a year.

THE
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Original Contributions.

Pulmonary Consumption.

Read before the Colorado State Medical Society, by. H. A. LEMEN, M. D. Denver. Col., June, 1876

Report of Forty-Four Cases of Pulmonary Consumption; Results of Physical examination of the same, and running Comments on Cases Illustrating Types of the Disease, the results of Altitude, Climatic Influence, and Medicinal Treatmest.

Mr. President and Gentlemen:

More than once have I had reason to regret the choice which assigned to me the subject which forms the caption of this report.

Last year, as some of you may remember, I had something to say before this society relative to "The Early Symptoms and Signs of Phthisis Pulmonalis"—a voluntary contribution.

I did not then feel prepared, nor do I now, to treat exhaustively upon the relations of our topographical conditions, and the climate dependent thereon, to this interesting and complex malady; although doubtless not a few within the bounds of this state, and many abroad, expect one who consents, or voluntarily proposes, to treat of the subject under consideration, to handle it from a Colorado standpoint.

Much of our "capital in trade," ever since the settlement of this country, has been its reputation for salubrity.

Column after column has been written in home papers justifying the consumptive in the belief that the millennium has arrived, for *him* at least.

Railroad circulars, hotel advertisements, real estate

agents, tracts, eulogized the beauties of our mountain scenery, the purity of the air and water, the brilliancy of our sunshine, the dryness of the atmosphere, the unsurpassed excellency of our beef, mutton, and dairy products, until many a consumptive was lured from friends and home in the distant east, frigid north, or sunny south, hopeful till the last day in the morning, to come to our enchanted land at any sacrifice of strength, home comforts, finances with no richer reward in the end than to obtain a mere glimpse of the snow-capped mountain tops, quaff for a few hours, days, or weeks, our exhilarating atmosphere, realize the not uncommon toughness of our beefsteak and sagebrush mutton chop, to return to the scenes of a deserted home in the habiliments of the grave. Others, suffering from the same dread malady, have fared better. Their lives have fallen to them in more pleasant places. Their *exchequer* has warranted an indulgence in porter-house beefsteak, mountain trout, cream, etc., to the extent of the capability of their digestive power, and their sojourn has been with friends well calculated to entertain. They have benefited in some respect, and their lives, if not materially prolonged, have been rendered more tolerable. They have not been so completely drenched in night sweat, or kept within doors by inclement weather, or tortured by hot, sultry, suffocating nights, scenes and surroundings have changed; a flood of sunlight warms and cheers them; mountain grandeur inspires them; cool, dry nights give refreshing slumber, and if, after having buoyed up for awhile under such magic influences, they succomb somewhat unexpectedly to themselves, their friends, or even their medical advisers, they have done, perhaps, on the whole, just that which was best for them to do.

Others, again, not so hopelessly given over to the malady, but with indubitable tracings of shattered health and well marked indications of local lesion, quit unfavorable hygienic surroundings at home, desert the counting room, the desk, the dust-laden air of the manufactory, and, divorced from their labor, and released from the friction of the old grooves in which they have been running, come to us, and inspired by the temptations growing out of the peculiarities of our climate and scenery to out-door life, indulge in that most potent means of renewing the wasted energies of the body and mind, moult their tissues anew, and really extend their lease on life.

And others still, warned by the loss of father, mother, brother or sister, of consumption, with mutterings of ill health, yet not possessing that vulnerability of constitution which inevitably forces them into phthisis despite where they go or whatsoever they do to anatagonize it, come and realize benefit of a radical character, find their tendencies to the disease bridged over, and that they gradually arrive at a plane of better general health than they have hitherto enjoyed, and, notwithstanding an active engagement in the affairs of life, wear well—*do well.*

So much in a general way as giving a very imperfect outline of the complexity of the results of consumptives, actual or predisposed, coming to Colorado for relief.

The question naturally enough presents : In what respect do these results differ from those that would follow sending the same parties, for example, to Minnesota, or selected cases to Minnesota, southern California, the Bermudas, Australia, or south coast of the Mediteranean ? What class of cases should come to Colorado with promise of benefit ? What the features in a case of phthisis pulmonalis, which should deter the individual from placing his case under the topographic and climate conditions furnished by Colorado, or render it quite probable that he may fare as well and live as long, or longer, at home, or some other resort than ours ?

Is it the *stage* of his affection, or the *variety*—the type —or both ?

I think it may be truthfully asserted that not a few physicians, and the majority of consumptive invalids, entertain the idea that if the latter come to Colorado early in the attack, benefit will necessarily ensue, leaving out a consideration of the type of the ailment. This is not altogether true of at least one class of cases, as I shall endeavor to show in the future of this report, nor is it necessarily true in reference to those cases for whom there is benefit in our climate and elevation at certain other stages of the affection.

With the exception of a single class, there is a proper time to come, doubtless, but that proper time is not always what might be termed the first stage of the malady. Of less doubtful propriety would the change be, if made anterior to the "first stage," for it is impossible to overestimate the importance of resorting to appropriate means, whether medicinal, climatic, hygienic, or dietetic, on the

mere hint of the approach of so unmanageable a disease as ordinary pulmonary consumption.

As giving a more distinct idea of the thought which it has been attempted to outline in these introductory remarks, it is only necessary to remind you of the fact that some consumptives come here in the "first stage" of the affection and do well; that is, if you follow them up until they die on the one hand, or they get well on the other hand—an event you occasionally witness—you are forced to the conclusion that the history of their cases has been a more favorable one than if they had done anything else than come to Colorado.

Others of this self-same class, as relates to "stage" of the affection, but differing in type and inherent tendency, die, you are assured, quite as quickly, nay, even more so, than had they remained at home, or sought other topographic and climatic influences than those to be found here.

Others come to us with a large cavity in the lungs, and shortly after their arrival begin to regain health; the appetite improves; night sweat abates; diarrhea ceases; sleep is more restorative; excessive and wasting expectoration diminishes; and moist, cavernous sound are exchanged gradually for dry, harsh respiration. And all this might have occurred had the patient remained at home or gone somewhere else.

Still others come to us, and shortly after their arrival, a hemorrhage from a cavity chokes them to death, or the increased demands made by the change upon the respiratory apparatus are greater than can be fulfilled; dyspnœa is aggravated, insomnia follows, the appetite fails, peripneumonic and bronchitic phenomena supervene, semicyanosis is established, and death supervenes; but how much more rapidly than if they had remained at home or gone elsewhere than here?

Out of this multiplicity of phenomena, apparently contradictory in itself, who within hearing, or even within or outside the limits of this state, has the temerity to assert that the task is an easy one of formulating rules indicating what class of consumptives can or should come here with safety and profit to their health, and what not?

Consumptives live for years in those regions of the eastern part of our continent, where in every 10,000 deaths from all causes, over 2,000 are from the malady under consideration In the same localities they also

perish from it and its complications, in a fortnight to a few weeks. Can we say that the same does not occur in Colorado; or cannot occur? Portal has said consumption lasts from "eleven days to forty years," and might truthfully have added: No spot on God's footstool, inhabited by the children of men, is exempt from it.

It originates in Colorado, as everywhere else under the shining sun, where men tarry. (See City Physician's Report for the year ending, April, 1876.)

But while these are facts, nothing in medicine is more conclusively established than the propositions: That it is much more prevalent in some localities of the earth, independent of the influences of occupation and habit, than in others; that under certain climatic, hygienic and social conditions, the average duration of the disease is longer or shorter, as these conditions are favorable or unfavorable.

With such conflicting, perverse and unpalatable truths staring us in the face, how shall we proceed in the attempt to bring order out of chaos.

Again, other well established facts in the science of medicine are: That the phenomena grouped under the term "pulmonary consumption" are numerous and diversified; that the inherent tendency to the disease manifests every gradation of intensity imaginable; and that, based on varying inherent or acquired tendency, as dependent on mode of origin of the attack in relation to the anatomical element, or elements, of the lungs involved in the same, wide differences of symptoms and signs present, almost irreconcilable with the custom of applying one cognomen to so varied a series of phenomena. The latter difficulty is partially surmounted, of course, by dividing the cases into groups, or *varieties*, and employing adjectives to distinguish the groups.

Thus is it that leading varieties of the disease are commonly spoken of as e. g: "Filroid Phthisis," "Acute Phthisis," "Hemorrhagic Phthisis," "Ordinary Phthisis," "Chronic Phthisis."

Elsewhere in the world, and notably in English practice, the observations of cases of consumption of the lungs have been so carefully made and analyzed, that the leading differences have not only been so clearly pointed out as to make typical cases of each variety easily distinguishable, but tables of "expectation of life," so to speak, for each class of cases have been constructed; such tables

relating more, however, to the *average relative duration* of the ailment, as manifested in a number of cases representing a variety of the disease, than as relating to the absolute number of months or years the individual will survive; so that if x equal the mean length of time which a subject of "acute phthisis" lives after the first symptoms present, 3 x will equal the mean duration of life of the subject of "chronic diffused tubercle," from the date of the initiatory symptoms till death.

"Ordinary phthisis" would be represented by x plus $\frac{x}{2}$, etc. (Pollock).

The average duration of phthisis, "all forms of the disease being taken together," has been variously estimated.

Laennec considered it to be	24	months.
Louis and Bayle (314 cases examined) mean duration	23	"
Andral, cases in La Charite	24	"
Sir James Clarke, taking cases in the upper classes of England, with all advantages for the care of health	36	"
C. J. B. Williams, by the use of cod oil . .	48	"

(Pollock).

It remains then for the medical profession of Colorado to carefully examine the cases of this disease coming here for relief, to take notes of such cases, and of the length of time they remain here, how long sick before coming, follow them up vigorously, note important differences or similarities, and finally, after an unprejudiced analysis of a sufficient number of such cases, establish, as nearly as possible, tables exhibiting the "expectation of life" for the leading varieties of consumption, and then by comparison with similar observations made elsewhere, and only in this way, can it be determined whether the ordinary consumptive lives longer in Colorado than in some of the neighboring states, or than in England, France, or Germany; whether the subjects of certain varieties, or certain stages of any variety, do better or not so well, as they might do elsewhere in the world.

Individual opinion, not based upon an analysis of a reasonable number of cases, passes in competent medical circles for just what it is worth—very little.

What is needed is a record of cases and observations.

Careful analysis of a large number of such cases will inevitably lead to correct conclusions, and we may thus become the depositories of valuable information to sufferers from this world-wide evil.

As a feeble beginning in this direction, for the past eighteen months I have kept a record of perhaps over half the cases I have examined.

A number of such cases were examined but once, for the reasons that they either died shortly afterward, went to a different part of the state or elsewhere, passed into some other physician's practice, or quit treatment altogether.

Not infrequently the notes were written hurriedly, and the answers to important interrogations omitted, the record is consequently nothing like so complete as I would desire it to be.

I ask the privilege of presenting it, however, for simply what it is worth.

It will at least demonstrate a few facts, as for example: The *variety* of the cases coming here for relief, the failure or success in individual cases of finding it, and occasionally an instance of apparent complete restoration to health.

I have *heard* of some very remarkable recoveries from consumption since coming to Colorado; heard of some of them, in fact, before coming. It is quite probable others have seen such cases. They may have encountered a more favorable type of the disease than I. These cases are said to be scattered through the mountains, up on Bear creek, out on the Bijou, over in the Parks, on the Divide, or down at Manitou or Colorado Springs, and doubtless representatives of the kind could be found in each of the localities mentioned, but still it would be pleasant to have notes of their cases—the result of physical examination of the chest—an account of their condition "before taking" and "after taking." It is the only way to clinch the argument.

The *Pall Mall Gazette* says that the worst cases of baldness can be relieved by using petroleum as a cosmetic; it should be rubbed on well once a day. Animals losing their hair are thus treated with advantage and success.

On Altitude and Climate in the Treatment of Pulmonary Phthisis.

Read before the Medical and Chirurgical Faculty of Maryland, by W. Gleitsmann, M. D., Physician in charge of the Mountain Sanitarium for Pulmonary Diseases, Asheville, N. C., recently from Baltimore.

In order to understand fully the value of a pathological view or the merit of a therapeutic method, it is necessary to study the different changes through which they have passed in their history. By these means we learn not only the growth of a theory out of others, but also the errors it has overcome, and are thereby enabled to guard ourselves against them in the future.

The theory in question, which engages the deep attention of the medical profession in the last decades, was thus not perfect at its origin, but had to go through many phases before it gained its present basis. Without entering into the details of ancient history, it is only just to remark that opinions then changed in the same succession as they did sixteen hundred years later. Celsus (30 A. C. to 40 A. D.) recommended the sea-climate, Aretaeus (50 A. D.) sea voyages, while Galen (131 to 201 A. D.) first advised elevated regions for consumptives. With the exception of a few writers, almost fully 1600 years passed over from that time till the subject was again taken up by modern scientists.

We can count the reopening of the study of the influence of climate from the past century. As our present auxilaries in the diagnosis of the disease could not then be made available, the presence of phthisis was generally ascertained only at a time when we now call it fully developed, and when devastations of the lung tissue are already present. The difficulties in traveling at these times induced the sick to make trips on sea, and to go to warm, sunny places, where the weak debilitated patient felt at ease. If we call this the preliminary period of modern climato-therapeutics, we can distinguish since the second decade of our present century three different periods. The first is marked by the importance which was attributed to the factor of temperature, and may be called the symtomatical period; the second, the specific period, took again only one factor in consideration, viz., altitude, and neglected all others; while the third, the

physiological one, takes, besides the main factor of altitude, due notice of all the different elements, which, according to the progress of climatological science, form in their combination "climate." We will see hereafter how these views, seemingly contradictory, generated one another, and in what relation they were to the prevailing pathological opinions of the nature of the disease.

The medical school of the first of these periods was guided by the desire to act in a mild, antiphlogistic, sedative manner. As the tendency of this time was inclined to treatment mostly against the symptoms of a disease, and as the opinion prevailed that a symptomatical treatment was about all that was possible in such cases, the patients were sent to places with warm climate. There were, at the same time, fantastical imaginations of the beauty of the southern climates and the miraculous effect of their balsamic air. Prominent French and German scientists, as for instance Baillie, Broussais, Stieglitz, Hufeland, adhered to this theory. The value of this school was based in the often instantaneous relief of the patient's symptoms, and the greater comfort of life, attained by the care used by the sufferer. Meanwhile the study of climatology progressed more and more, differences between climates of various places were developed, and the elements constituting "climate in general" were more carefully differentiated. The frequently unsatisfactory and even bad results of this period, the impossibility to act upon the disease itself, led to an overthrow of existing opinions, and formed the transit to the second period.

The so-called specific period attached the main therapeutic value to the diminished pressure of air. Its views are mechanical, and their tendency is towards stimulation against the defective development of the heart and of the apex of the lungs. On its basis originated the idea of prophylaxis, which could not satisfactorily be solved by the antecedent period.

The pathologico-anatomical conception of this era was founded upon Laennec's doctrine, which traced the ultimate lesion to specific tuberculosis of the lungs, and miliary growths previous to softening. While climatic treatment by altitude had already gained popularity in foreign countries, its development progressed more slowly in Europe. The attention of the French nation was attracted to the sanitary value of altitude at the time of the

Mexican war, and by the increasing reputation of the watering-places of the Pyrenees. Laennec's theories were introduced in England by Clark and Stokes. In India, sanitariums sprang up in the mountain regions, in order to meet the local want of European military and civil officers for retreats affording alleviation from the pernicious influence of the tropical climate; they, however, never were exclusively devoted to pulmonary diseases. At this period the Spanish inhabitants of South America commenced to make use of the mountain terraces of the Andes, not so much as summer resorts, as for sanitariums for consumptives. But the most thorough investigation was accorded to Laennec's views in Germany, where the theory of altitude also received the same searching attention. Schœnlein, Canstatt, Rokitansky, built up the doctrine of Crasis; but in whatever classification we may arrange tuberculosis, be it as gray or yellow tubercle, inflammatory, cancerous, typhoid or sarcomatous tuberculisation, still the tendency to the specificity of the disease maintained its predominance, in accordance with which we observe the search for specific treatment, as is illustrated by the advocacy of rarefied air. At the same time climatology and medical geography became subjects of earnest study, and among the fruits of this period we may enumerate the well-known works of Fuchs, and particularly Muhry in Germany, Jourdanet in France, Herrmann Weber in England, Archibald Smith in America. Without further entering into these labors (which I have done in a previous paper, published in the *Richmond and Louisville Medical Journal*), the general fact was elicited from them, that the existence of phthisis diminishes, or even ceases altogether, with the increase of elevation above the sea-level, and that this boundary is higher in the tropics than in the temperate zones. In this connection mention must be made of two works, one of them still belonging to this period, while the other is of more recent date. Both embrace small, though well-known sections of country, and furnish concise information of all inhabited places according to elevation, number of inhabitants and of deaths from phthisis, in a variety of tables. In this way Kuchenmeister has investigated the kingdom of Saxony, and Corval the Grand Duchy of Baden, and both found a uniform corroboration of the laws set forth, even on so limited a scale. As a peculiar

feature of this period we remark the theory of absolute immunity, which was carried to the length of asserting a simple means of calculating the sanitary elevation of various places according to their latitude. But it was this very exclusiveness which, by ignoring all other factors, created the necessity of a modification. The appreciation of the value of the other agencies entering into the idea of climate, added these to the simple element of altitude, and led to the present state of the theory.

In 1864, Vivenot published a work attempting to illustrate the relative humidity of atmosphere, and to give it prominence as a means of classification. Considering the great variability of this factor, the consistency of its prominence soon became evident, and atmospheric pressure had to be retained as classifying means, because it possesses the greatest constancy and is subject to the least amount of variation as a chief factor; while, moreover, evaporation and temperature are dependent upon it. Nevertheless, an impulse had been given to the separate study and application of the value of each of the various auxiliary climatic agencies in the treatment of phthisis. By the observation and labor thus developed, we are introduced to the—

Third, or physiological period. The therapeutic character of this period may best be designated as alterative.

The views of the pathology of phthisis now received a broader and firmer basis through Virchow, in his Cellular Pathology. About the middle of the last decade the clinical doctrines of Niemeyer regarding caseous pneumonia, its nature and termination, and its relation to scrofula and miliary tubercle, created an era in practical medicine. In like manner, as pathological conceptions became broader, the idea of climate also developed. Apart from the degree of atmospheric humidity, temperature was more generally taken into consideration, as sudden and frequent changes of temperature have been found to exert a deleterious influence upon the organs of the chest. Besides, as Weber very aptly remarks, a number of other conditions must be taken into account in estimating the therapeutic or sanitary value of a locality, as for instance, the situation on tableland or on top of a hill, on the slope or in a valley; the aspect to the south, west, north, or east, the configuration and height of surrounding mountains, the nearness or absence of sheets of standing water, the occurrence or

absence of fogs, the number of clear days, the geological formation. Although this third period forms a complete system in itself, we yet meet with a certain overcrowding and want of arrangement. Since efforts were made by the school of the second period to modify and enlarge the exclusiveness of its theory, these two schools now both exist in society, though not entirely assimilated. To harmonise these views in asserting the truths and rejecting the errors of each, is the task of the present day. Many willing and active workers in hygiene and climatology are co-operating in this work. It is to be hoped that by this means we shall be able to increase and perfect our knowledge of the general and special matters of inquiry, and by a combination and comparison of general results, obtain reliable data for judgment in particular cases.

In addition, permit me, gentlemen, to submit a few remarks upon the effects of climate on consumptives. I shall confine myself to the two chief therapeutic elements, prominent in the first and two last periods, that is, southern and mountain climate. In regard to the former, the idea is generally accepted that patients in such climates are supposed to be able to spend the greater part of the day in the open air, without risk of taking cold. Since in lower, southerly latitudes at least, they can fulfill the essential condition of unlimited use of fresh, pure air, we are compelled to consider results in order to be able to institute comparisons with the effects of mountain climate. We find the success attained in southern climates alone, without altitude, confined to relief of symptoms, only warding off fresh injury. The patient, after returning home, has not acquired that power of resistance which alone can prevent a new brochial catarrh or fresh catarrhal inflammation attacking the alveolæ of the lungs. As much as ever he is exposed to the same danger of a relapse from the same causes, or is perhaps inclined to it in a still higher degree, as the warm, humid atmosphere has served more to enervate than to invigorate his system. As to the influence of the climate itself, Mittermeir, one of its prominent eulogists, concedes, regarding that old and well-known representatives, the Island of Madeira, that consumptives with caverns and fever very rapidly grow worse there. Every practitioner, however, is well aware that the generality of cases of phthisis only come

to his knowledge when fever already exists, and caverns are at least probable.

In considering the mountain climate, we observe the great prophylatic advantage it affords in cases of hereditary or latent disease. We shall see hereafter what influence the mountain climate will bring to bear on defective development of the organs of the chest. We note, furthermore, that the patient is able to continue his treatment in summer-time also, and we shall find that he can enjoy the open air just as frequently and without injury in winter-time. If, for instance, we proceed to compare Davos, a mountain resort in Switzerland which has come much into note of late, with the warm winter resort Meran, situated in southern Tyrol, we are at once struck with the following meteorological observations: At Davos, the thermometer rose to 28° Celsius (82° F.) in the sun on warm, bright days in the winter; and the number of days during which the patients were able to sit in the sun from 10 A. M. to 3 P. M. averaged during five years:

	Davos.	Meran.
November	18	13
December	16	16
January	19	16
February	19	14
March	18	13
	90	72

Consequently an excess of 18 days in the mountain over the southern resort. Those mountain resorts that are situated in a more southern latitudes, and consequently have a milder winter than Davos, will show even more favorable conditions. In direct relation to intercurrent diseases, Dr. H. Weber has published clinical records, kept with the utmost accuracy, instituting comparisons between patients who had in part visited the mountains, in part the south. Among the 17 cases whose history he gives, there are 10 who have spent one, or several seasons in southern health resorts. All these 10 said that they had been much more free from intercurrent acute affections on the high level than on the low level places; but of 5 he gives the following astonishing data: These 5 cases spent an aggregate time of about 80 months in low level, and almost 160 in high level health resorts; of these 80 months they were confined nearly 20 months, or ¼ of the whole time, to their rooms or beds on account of intercurrent diseases, especially bronchitis, pneumonia, pleu-

ritis, rheumatic fever and hæmoptysis, while of the 160 months on high ground they were confined for the same reason less than 10 months, therefore not quite one-sixteenth of the time. And alluding to the fear that mountain air may dispose to hæmoptysis on account of diminished atmospheric pressure, Weber again says that among the 17 cases whose history is given, and 14 others still under observation, only one had a slight hæmoptysis while residing on high level; and among these 31 cases there are twelve who had from 1 to 4 serious attacks while residing in low elevation. These observations are corroborated by others.

The general effect of mountain climate, considering its tendencies as a whole, must be characterised as an active one, since increased demands are made upon the functions of the organism from all sides, both mechanical, chemical and dynamic. The diminished pressure of the air acts mechanically, the evaporation chemically, the temperature dynamically. The pressure upon the total surface of the body is lessened, and more margin allowed for expansion and absorption of fluids. At the same time the inner pressure upon the lungs is weaker, and their contractile elasticity meets fewer checks. In order to overcome this, a greater degree of mechanical muscular force is required to perform the act of inspiration; respiration receives an active impetus. Apart form this mechanical influence upon the muscular action and contractile tissue, the rarefied air has another and similar one upon the gaseous contents of the blood. As the carbonic acid escapes more readily, the blood in the affected lungs can better divest itself of it, and the tissue change is indirectly aided. Moreover, we observe a secondary physiological effect upon the motion of the blood. Owing to the constant gymnastic exercise of the respiratory organs, the walls of the thorax expand and the air channels are better filled and ventilated. The blood channels, particularly of the capillaries, expand; these latter become straighter, and their resistance to circulation decreases. If now the relief afforded the circulation strengthens the heart muscle, and the change of air in the lungs is made more thorough and extensive, results are attained which are to the sick health, and to the already well, development. Taking the increased force and rapidity of the blood-wave, and the consequently greater abundance of blood in the lungs,

as a basis, Dr. Brehmer has founded his theory of the treatment of phthisis, and proved its correctness by the most brilliant results. I will only repeat what I have already alluded to elsewhere, that with an average treatment of 86 days he permanently cured 20 per cent. of his patients.

The constantly lower temperature of the mountains is a stimulant to the physiological production of body-heat, as a consequence of its perpetual withdrawal. It has at the same time an important effect upon the energy of the nervous system and upon the contraction of the tissues. The lower humidity of the air induces a greater amount of watery substances to pass from the body in form of vapor through the skin and lungs, consequently the tendency to perspiration is diminished, and the mucous membranes are more dry. This evaporation, however, by withdrawing water and warmth, induces a local cooling off through change of water into vapor, which cooling must be perpetually compensated by a general production of warmth.

I pass over without further mention the other special conditions and attributes of mountain climates, since the same are too variable to be considered in a general view. In the choice of a locality, such conditions as geological formation of soil, aspect, vegetation, social conditions, all must be consulted, together with many other points.

After having briefly sketched the history and beneficial effects of mountain climate upon phthisis, I venture permission to express the hope that these questions may before long receive the same appreciation and attention in this country as they have elsewhere obtained. The field is vast, and many difficulties lie in the path of investigation; but the solution of these problems will be received with so much more joy and gratitude by suffering humanity.

Importance of the Galvanic Current in Electro-Therapeutics.

Read before the Medical and Chirurgical Faculty of Maryland. By Francis T. Miles, M. D., Professor of Anatomy and Clinical, Professor of Diseases of the Nervous System, University of Maryland.

After years of exaggerated laudation, ignorant opposition, and knavish misuse, the great body of our profession in this country regard the use of electricity in medicine

with coldness and mistrust. Believing as I do that it is a most powerful, though undeveloped, agent in the treatment and diagnosis of disease, I regret the indifference generally shown to the subject, and especially do I deprecate the expression of positive opinions formed from a very superficial knowledge of, and a very limited experience with, electrization. How many cases of disease of the nervous system are deprived of all the chances of relief from electro-therapeutics, because it is easier, backed by numbers, to say "it is all humbug," than to confess ignorance of the subject; how many cases that might have been relieved, if not cured, by the proper use of electricity, go on from bad to worse till death closes the scene, while the practitioner, having caused certain muscles to contract vigorously with the faradic current, is comfortably assured that "he has tried electricity without any benefit?" To deny the power of this therapeutic agent is injury enough to the progress of our art, but it is surely worse to partially apply or misapply it, and report the effects, or non-effects, as the legitimate results of its use.

Almost every physician possesses some kind of faradic battery (there are several of excellent patterns in use) sufficiently portable and easily worked to make them available for the ordinary demands of practice; but how few general practitioners make use of galvanism as a means of diagnosis, or for its therapeutical effects; and yet a glance at the subject must convince us of its great importance, and how absolutely necessary is its use if we would fairly test the scope and value of galvano-therapeutics, or claim that we have "tried electricity" in obscure cases. It is with the galvanic or constant current alone that we can penetrate the tissues and act directly upon deeply-seated organs. Thus it is with the galvanic current alone that we can reach the brain, the spinal cord, the deep portions of the sympathetic nerve, etc. It acts upon the vaso-motor nerves of parts remote from the points of its application, and so enables us to modify directly the circulation in organs (brain, spinal cord) in which integrity of function depends so essentially on proper blood supply, and in which the very great majority of organic diseases begin with alteration in their blood-vessels, with conditions of hyperæmia or anæmia. Whatever the catalytic effects of electricity may accomplish in the cure of disease (and we must confess the subject is in a state of very unsatisfactory ob-

scurity, in spite of, or may be in consequence of, the vast claims made for its efficiency), those effects must be sought for by the galvanic current alone. In the treatment of paralysis, to use the words Erb, " No one at the present time denies that the galvanic current possesses a much wider range of usefulness than the faradic, since it proves beneficial in many central paralyses in which the faradic has no effect."

It is surely of great importance to a rational and comprehensive system of therapeutics, that so potent an agent as galvanism should not be left exclusively in the hands of specialists, enthusiasts, and charlatans; but that the honest, hard-working practitioners of medicine should take hold of it aud bring it to the test of general use, or at least learn to know so much of it as to appreciate those cases where benfit may be expected from its employment. I believe one of the greatest obstacles in the way of it general use is to be found in want of portable and easily-handled instruments, giving a uniform and sufficiently powerful galvanic or constant current—a galvanic battery which can, without great trouble, be taken to the bedside, in the daily round of the general practitioner. This want is, I think, admirably supplied by the twenty-cell hand-battery made in Dresden by Storer. It is simple in construction, not easily broken or put out of order, gives a strong, uniform current, and is very easily handled. * * *

Inflammation of the Lachrymal Sac.

By W. R. Amick, M. D., Cincinnati, O.

The lachrymal canals commence at minute orifices on the margins of the lids. These orifices are called puncta lachrymalia. They commence at the summit of slightly elevated papillæ, and lead into minute canals, the canaliculi, which proceed inwards to terminate in the lachrymal sac. The lachrymal sac is the upper dilated extremity of the nasal duct, and is lodged in a deep groove formed by the lachrymal bone, and the nasal process of the superior maxillary. It is oval in form, the upper end being closed in and rounded, while below it is continued into the nasal duct. The sac is lined by mucous membrane which is continuous through the canaliculi, with the conjunctiva,

and through the nasal duct, with the pituitary membrane of the nose. From the anatomy it is evident that an inflammation may commence either in the mucous membrane of the nose, or the conjunctiva, and extend to the lachrymal sac. We also find that this is generally, though not always, the case.

Inflammation of the sac, when acute, is attended with considerable pain. The swelling may extend to the eyelids, and involve the side of the face. The tumor formed by the pressure of fluid in the sac rises sometimes as high as, or even beyond, the level of the nose. By pressing upon the tumor, the contents can be entirely or partially forced out, either through the duct or the canaliculi. When it is made to regurgitate through the latter, it can be seen swelling up at the internal canthus. In some cases, owing to obstruction, the contents of the sac cannot be forced out by pressure. If the distension of the sac is very great, the integument over it becomes reddened and thinned, and if left to take its own course, frequently makes a spontaneous opening. The inflammatory symptoms then subside to a great extent. If the opening remains patulous, the discharge will be more or less continuous; but if it closes up, then the continuous accumulation will again distend the sac, but ere it reaches its former size, the contents will generally be forced out again by opening up the old rupture.

Frequently in the commencement of inflammation of the sac, after there is a perceptible tumor formed, by pressing upon it with the finger, the contents can be entirely forced out, and for a day or two, or even a few days, it will appear as if the trouble had passed away. But then in a few days the sac will again become distended, showing that the disease still exists, probably in a mild form.

In the treatment of these cases, the main point is to establish a free exit for the discharge. This is probably best done by dividing the punctum and canaliculus into the sac. This operation may be performed either by slitting the canal open with a fine probe-pointed pair of scissors, or with a probe-pointed canaliculus knife. Another way is to pass a fine wire probe into the punctum through the canaliculus, and then elevate it and pass it down into the nasal duct and leave it there. It acts on the principle of the elastic ligature, and in a few days the

canaliculus will be found to be divided quite into the sac. If there is a stricture at the commencement of the nasal duct, it will have to be dilated. This may be done by a systematic use of probes, commencing with the smaller numbers, or by dividing the stricture and using dilators afterwards. If there is a condition of chronic inflammation of the sac existing with a muco-purulent discharge, astringents should be used. It is best to cleanse the sac first by injecting water and then the astringent, either zinc. sulphate or alum—two to four grains to the ounce—may be used. Where the inflammation is obstinate and does not yield to treatment, the sac is sometimes obliterated. This is done by applying nitrate of silver, nitric or chromic acid, or zinc paste directly to the sac.

A Case.—Mrs Hoffman, æt. 42, has been troubled for the last five years with a tumor on the right side of the nose, just below the internal canthus. She never had conjunctivitis, and never was troubled with nasal catarrh. The pain at times was very severe. The swelling extended until the eye was nearly closed, and involved a considerable portion of the right side of the face. She was not and had not been troubled very much by the tears running down over the cheek. I saw her first on January 26. The tumor at that time was as large as an almond and very firm. The integument over it was reddened and thinned, which condition she stated had existed the greater part of the time. The contents could not be forced out even by very firm pressure directly upon the tumor. On account of the prominence of the tumor and margin of the orbit, a probe could not be passed into the sac. It could not be passed very readily through the punctum and canaliculus nearly to the sac, but there it met with an obstruction that prevented it from going any farther. The contents of the tumor, which consisted of mucus and pus, were evacuated by making an incision into the sac. A probe passed through the incision revealed a complete stricture of the nasal duct. The stricture was incised and then dilated by means of probes. The sac was cleansed and astringents used, injecting them through the incision. After the contents had been evacuated, there remained a considerable prominence, caused by an hypertrophied condition of the sac. The incision was kept open by passing a probe every day for two weeks. At the end of that time it was permitted to close up. A week later the

hypertrophied condition of the sac had entirely disappeared, and the tears passed down through the duct. There was no prominence to be seen, and she expressed herself as being entirely free from the trouble that had so constantly annoyed her for the last five years.

A peculiarity of the case is, that the tumor should attain so great a size, remain so for so long a time, and yet not open spontaneously.

The Nature and Purpose of Fever.

Zanesville, O., Feb. 28, 1877.

Prof. Thacker:

Being quite human in my nature, approval of my work by members of the profession is, to me, the reverse of disagreeable. Hence, I read with some satisfaction the first page, and part of the second, of the communication by Dr. Kibbee, in the News for February, present year.

Dr. Kibbee can hardly have been a reader of the Medical News, for the last eight or ten years, or he would not have offered for publication a paper so hastily written as this has evidently been.

Dr. K. does not seem to be acquainted with any part of my contributions to the medical press for the last ten years, except this one, on the "Nature and Purpose of the Fever Process." Had he been familiar with the purpose running through all my published papers in the Medical News alone, he would have seen that this one, which seems to have arrested his attention so closely, was but a part of a symmetrical and consistent whole; in short, nothing more nor less than a science of life and therapeutics from a purely physical stand-point, regarding all life on our globe, animal and vegetable, as the resultant of the ordinary forces of nature around us. Such a study necessarily excludes all dogmatic assumptions, deductions, or inferences, not legitimate inductions from from the facts concerned in my problem.

If I can understand Dr. K., most of the subject matter of his paper is *impromptu*, suggested by my study of the Nature and Purpose of the Fever Process. He seems to have had some rather uncommon success in the pro-

fessional management of fever by cold water; and on this single therapeutical circumstance proceeds to construct a theory of fever, taking as the central fact the increased heat.

He states, as his fundamental physiological fact, that "the first, and absolutely essential condition of life and health in man, and all animals known as 'hot blooded,' is heat at 98°."

In this he is certainly mistaken. Life has many conditions besides temperature, as materials, forms of structure, gaseous envelope, etc. In the single matter of temperature, the wolf, squirrel, etc., are natural at 105°; fowls, and birds, from 103° to 111°; marmot, in summer, 103°; same in winter—torpid—43°.

"The heat of human bodies is called vital heat, because it is produced by vital action in the organism," he continues; but he does not state that it differs in no respect from heat produced outside of living beings, by chemical or mechanical means, or, at least, that no means are known that establish any difierence; besides, he does not seem to recognize that heat is a correlative of all other known modes of force; or that all known modes of force, as light, heat, gravity, chemical affinity, magnetism, electricity, etc., are mutually interchangeable, and all merge into motion, and motion into the sun's rays.

The "excessive heat" on which he dwells so much, is one of the results of chemical action in living bodies, and always the product of decay of structure, or the descent of the materials of structure to simpler chemical conditions, of which every function of a living body is only an incident. The cold finger of science writes on the blackboard, "For every dynamic result there must be changes of matter." If structure has been so modified from any cause as to cease to have capacity to perform natural function, it will and must still decay, but the results will be an exaggeration of natural function, as spasms, delirium, etc., or no function at all, and heat, more or less in deficit or excess. That is all there is of Dr. K's "exalted vital action," so important a factor in his equation.

Dr. K. does not seem to know that Prof. Tyndall is not recognized as "authority" by the profession of the world. His tremendous discovery of "seed poisons," "disease germs," and "ferments" abounding in such vast quanities

in the atmosphere, and the extreme danger of inhaling it, only through one of his patent "respirators," was so obviously opposed to common experience, and common sense, that it failed to attract the attention of any but a few very nervous people; and did not create a market for any considerable number of his "cotton wool respirators." Nor that the other tremendous discovery of Dr. Wm. Budd, and his mode of communicating it to the profession and his fellow-men, was anything else than the vagaries of a declining intellect, that in its best days was never great. True, Prof. Tyndall was much hurt by this "neglect" on the part of the British profession and public of his great discovery. His cotton wool respirators are not now, with no probability of ever becoming, leading articles of commerce.

The conclusion so summarily arrived at, that the "fever process is * * * a duality, composed of exalted vital action and consequent heat," can hardly be admitted into the scientific church, seeing that the cause—exalted vital action—is purely imaginary, hypothetical, and the consequence or result heat, the only fact in the formula.

Then, again, it is not an accepted truth that heat and cold are the "two great antagonizing forces of nature." The fact is, that they—heat and cold—are only relative terms, expressing only different degrees of one and the same thing—heat, *i. e.*, motion of matter.

The professional management of fever does not consist, in my hands, solely of "removing heat." It does not seem to me that any such performance as "removing heat" is possible for the very simple reason that heat is not a thing to be removed. There is such a thing as slowing motion of materials, and, therefore, slowing the production, so to speak, of heat, in or out of the body. In the body, by the external application of cold air or water baths, as well as by chemical means in the "stored up force" in drugs and medicines—of which veratrum viride is an example.

Dr. K. triumphantly asks, "Can Dr. McElroy, or any one of us, adduce the slightest evidence that the presence of malaria, or infectious seed poisons, causes the least change in blood or tissue until after vital resistance is set up against it!" * *

Malaria is a thing altogether of "inference," "deduction," or "assumption," for nobody has ever seen it, or

demonstrated its existence in any way whatever, except by hypothesis, to account for certain results, for which no obvious cause could be discovered.

It is not necessary to "infer," or "deduce" the existence of "seed poisons," "disease germs," any more than malaria to account for certain results. Matter, in virtue of chemical complexity, stores up force; and "stored up force" is a demonstrable fact, is all that is needful to account for any disturbance of the processes of nutrition and waste of living tissue, which must occur before anything can be known of so-called "disease." For, like malaria, disease is a myth, pure and simple, existing only in people's imaginations—professional and non-professional—but never in their bodies; Dr. K. looks upon it, for example, as a thing of the "varmint" nature, to be hounded or otherwise driven out of the bodies of sick people.

But it is not necessary to proceed further in pointing out the errors of this impromptu study, or theory, of fever, by Dr. K. It seems to me that so far from having simplified the subject, he has certainly added something to its already existing complexity. Instead of "lettig in more light," he has shrouded the whole subject in deeper darkness and mystery than ever.

In conclusion, permit me to thank Dr. Kibbee for having called attention to my paper. If he will take a little time, and observe and study fevers attentively, he may be able to let in more light on the subject by and by, for he seems to be able to both work and study, and for one, I bid him good speed in toil, but must beg of him not to invent anything, not to suppose anything, not to infer any thing, let him stick to the facts of nature, and he will certainly be able to understand fevers better, and in due time throw a little light on the subject so as to instruct others. I am ready, willing, and anxious to learn myself.

Z. Collins McElroy.

Capillary Nævus.—Dr. Bradley (*British Medical Journal*,) states that he has practiced tattooing the skin over "port-wine stains" with carbolic acid. The result was a complete disappearance of the disfigurement in about three weeks. He recommended a further trial of this method.

Selections.

Heredity and Consanguineous Marriages.

We condense the following from a recent editorial in the London *Lancet*. Dr. Blandford's recent introductory lecture at St. George's Hospital is quoted, in which the hereditary tendency of nervous diseases is specially noted. There are various sources (of idiocy, insanity, epilepsy, neuralgia, chorea and hysteria) which are unavoidable, he said, but men and women can help marrying when they have had an attack of insanity, or when their families are tainted through and through with the disease. In all such cases there cannot be a doubt that the medical man should oppose marriage, or at any rate, should not sanction it. Nothing can be better established than that all the above-named affections are hereditary. Esquirol found that in more than twenty-four per cent. of his cases, insanity resulted from hereditary transmission, Parchappe estimated the proportion at twelve per cent., Guislain at twenty-five per cent. Briquit arrived at the conclusion that twenty-five per cent. of those affected with hysteria had parents who suffered from nervous diseases, and nearly equal proportions would probably be obtained if reliable statistics of the other affections could be obtained. Dr. Blandford limited his observations to nervous diseases, but unhappily nervous diseases, or rather diseases of the nervous system, are not the only ones that are hereditary. Gout, rheumatism, tubercle, scrofula, cancer, syphilis, with their endless modifications and varied consequences, here affecting the vascular system, there the osseous, here the organs of special sense, and there the mucous membrane or glands, furnish a long list of maladies which might well make the most fervid philanthropist despair, and lead a timid man to hesitate before he plunges into matrimony, or at least, to inspect with some interest the family history of his future wife as well as his own.

Fortunately, under favorable conditions, the tendency of the seeds of these diseases to develop disappears, and with good air, good food, and free exercise, the offspring even of somewhat vitiated parents grow up healthy and strong.

The writer directs attention to the importance of not confusing the heredity of certain forms of disease with the

effects of consanguineous marriages. He holds the view "that healthy cousins are likely to produce healthy progeny, but that where there is distinct proclivity to disease on both sides, such marriages should be opposed, not because the contracting parties are cousins, but because the existence of such proclivity in the father and mother is almost sure to result in the intensification of the disease. Voison satisfied himself that among 1,557 cases of idiocy, insanity, and epilepsy, which came under his observation in the Bicetre and Salpetriere, not one could be traced to a marriage of kindred—a rather remarkable fact; and Mr. Child has collected a considerable body of evidence to the same effect. If the parents have an equal predisposition to disease, it matters not, so far as the offspring is concerned, whether they are related or not. Under either circumstance, as Dr. Blandford maintains, the surgeon's duty is to oppose, if not forbid, their marriage. Tastes, it is proverbial, differ in regard to what constitutes beauty in man or woman, but few will disagree as to health; and they will best consult their own happiness, and that of their family, who take a helpmate of strong constitution and pure blood."

Remarks on Aspiration, with Report of Cases.

By William D. Hooper, M. D., Lynchburg, Va.

Having had several cases in which I used Dieulafoy's aspirator with very happy results, I have been induced by several of my medical brethern to prepare a report of the same.

Of the instrument itself it is unnecessary for me to speak, as it has been described so often in the journals that every one is familiar with it and its *modus operandi.* I will just observe, however, that of all the American instruments I have examined, not one comes up to the requirements of a perfect aspirator. First, the No. 1 needle is not small enough; second, the needles are not highly polished on the beveled or cutting edge; third, they are gilded instead of being nickle-plated; fourth, they are too bluntly beveled on the cutting edge. These defects unfit them for puncturing the intestine or pericardium—the most important uses of the instrument. I have been informed by a physician in a neighboring county that

death followed the use of one of these American instruments, the physician having employed it in a case of retention of urine; the opening in the bladder did not close, but allowed the urine to escape into the abdominal cavity, causing fatal peritonitis.

I have not seen it stated that the aspirator is liable to explode, but such is the fact. Two medical friends of mine were aspirating a hydrocele, when, by some means, the catch of the piston rod was interfered with when there was only half an ounce of fluid in the indicator. The piston descended with sufficient force to shatter that portion of the glass cylinder corresponding with the level of the fluid into many pieces, scattering them and the fluid in every direction. Of course, it is impossible for such an accident to occur when there is no fluid in the cylinder, or when it is nearly filled.

The great aim to be attained in the use of the aspirator is to withdraw fluids or air from cavities, or pus from abscesses, without allowing the atmospheric air to gain access. Practically, the following rules only are necessary to obtain this result: Produce local anæsthesia at the point you wish to make the puncture; anoint the needle well, first seeing that it is clear of all obstruction; thrust is boldly through the tissues until the cavity is reached; then, and not until then, apply the aspirator, previously exhausted. My reason for not applying the aspirator before making the puncture, as recommended by Dieulafoy and others, is that by so doing you avoid producing irritation along the track of the needle, caused by the sucking in of the tissues through the side opening and the point of the needle, which is sure to occur if you attach the exhausted cylinder first; and then, too, you have better control of the needle, or trocar, when the instrument is not attached. It is impossible for air to enter the cavity when you remove the handle of the needle, for the cavity is already distended with its contents. Do not allow the point of the needle or canula to come in contact with the sides of the cavity. If the needle should become obstructed, do not detach the aspirator and insert a wire, as recommended, but force back a little of the fluid contained in the indicator; for if you detach the aspirator and insert a wire, you are compelled to admit the air. Before removing the needle, after the fluid has been withdrawn, wash out the cavity thoroughly

with water that has been boiled and strained through a cloth, then allowed to cool; or, as I prefer, a solution of iodine made by the addition of four drops of the tincture to eight ounces of water. When the water is no longer stained after withdrawing all that is possible, turn the stop-cock of the receiver or indicator, and withdraw the needle, and at the same time press upon the tissues on each side of the puncture with the forefinger and thumb of the left hand. The action of the exhausted receiver is not kept up at this time, for the same reasons given for the insertion of the needle. Withdrawing the needle in the manner mentioned creates a vacuum, and atmospheric pressure will keep the track of the needle and the walls of the cavity in contact. However, it is better to apply a compress and roller, in case the pressure is not sufficient. I much prefer the weak solution of iodine for washing out the cavity of an abscess; for if the stronger solution, which is generally employed, be used, too much irritation will be set up and the abscess will refill; whereas the weak solution produces just enough irritation to cause the walls of the cavity to unite by first intention, as is shown in Case I, which is reported further on in this paper.

It is well not to wait for fluctuation before resorting to aspiration, notwithstanding the delicate structure or importance of the intervening tissue, as it is not injured if proper care be taken; much valuable time is saved and suffering prevented to the patient. Especially is this the case in sub-periosteal abscess near some important joint, as the hip or knee-joint; for here we have the pus pent up by a dense, unyielding membrane which will not give way and allow the pus to direct its way into the soft tissues, thereby producing the sense of fluctuation until severe injury to the bone has resulted, or extensive stripping off of its investing periosteum, even to the extent of reaching the joint, although it may have originated some inches from that point. I think the best rule to follow in treating these abscesses is to select the point of the most intense pain, and after mapping out the area of induration of the soft parts, insert the trocar in the centre of the most unyielding point, thrusting the needle or trocar boldly through the intervening tissues until you touch the bone, or until you are sure you have reached the collection of pus. The unusually good result following the early use of the instrument in these cases is shown in the case of

sub-periosteal abscess of the femur case. Although there were present with me five other physicians, not one of us could detect fluctuation, nor was there any heat, redness, or swelling. Yet, on using the aspirator, I withdrew an ounce and a half of pus, washed out the cavity with the weak solution of iodine, and in five days the patient was perfectly well—able to bear her whole weight on the affected limb—nor did she suffer any pain after the performance of the aspiration. In Case III, I am sure I saved my little patient a protracted attack of coxalgia, with its attending dangers, and long confinement in bed.

After so many reports of successful cases of hydrothorax, treated in its early stages by aspiration, we are justified in resorting to the use of the aspirator as soon as fluid is detected in the cavity. I lost a case sometime ago by waiting only three days. My patient lived some distance from the city, and as there was no instrument in the neighborhood, and as the breathing of the patient was not much embarrassed by the collection of fluid, we determined to wait until my next visit; the day following he died suddenly after eating his dinner, and at the *post mortem* we found the pleural cavity not only filled, but distended with fluid. Nor should we wait long in drawing off the fluid, the result of pericarditis, for there is little danger in wounding the heart, if ordinary care be taken.

In obstruction of the bowels or invagination, aspiration is by far the best treatment, and I hope the day of drastic purgatives, inflation of the rectum, and metallic mercury has passed; for as soon as we withdraw the accumulation of gas above the point of occlusion, and the intestine regains its peristaltic action, the obstruction is overcome and the patient relieved. Since the report of my case in the *Virginia Medical Monthly* for July, 1875, I have seen the report of three other cases by Demarquay, of Paris, in which he gives the same views as stated above. The same reasoning applies to strangulated hernia. In these cases we must use the smallest needle that can be made, and be sure that it is highly polished.

Since the introduction of the aspirator, a surgeon is liable to just censure if he cuts down upon an abdominal tumor without first ascertaining its nature by means of this instrument. It is astonishing to any one who has never used it to see with what ease we can ascertain the character of the contents of an abdominal tumor, the

thickness and vascularity of its walls, and, if a true ovarian, the location and extent of its attachments.

The principle of aspiration is not new, for the same end was accomplished by other means years before the introduction of Dieulafoy's instrument. I myself used a hypodermic syringe, in 1866, to ascertain the character of a swelling of the shoulder-joint, by withdrawing a few drops of the contents; on examination it proved to be a medullary sarcoma. I have no doubt others resorted to the same means before this, as several have done since. Dr. B. Blackford, of Lynchburg, reports a case in the *Virginia Medical Monthly*, in which he used the syringe to withdraw pus from between the lamellæ of the cornea and in the anterior chamber of eye.

Dr. Fauntleroy, of Staunton, reports a case in which he used it to ascertain the nature of an ovarian tumor, and Dr. J. St. Pere Gibson, of Augusta county, Va., used the syringe needle attached to a Davidson's syringe to relieve an over-distended bladder. But we are indebted to Dieulafoy for giving us a perfect instrument, and demonstrating that small, highly-polished tubular needles might be thrust into cavities and through tissues which before it was thought to be dangerous to interfere with in any way.

I will close these extended remarks by citing the following cases:

Case I.—Emma J., aged 12 years, while convalescing from typhod fever, received a fall by which she injured the periosteum of the femur four inches below the hip-joint. I was sent for two weeks after, and found her suffering severe pain at the point of injury; no heat or redness, and but very slight swelling. Mapping out the area of induration of the soft tissues, I selected the most unyielding point and inserted the No. 3 trocar, and withdrew an ounce and a half of healthy pus, the point of the canula resting upon the denuded bone. After washing out the cavity until the water was no longer stained, I injected the weak solution of iodine (four drops to eight ounces of water); withdrew that after allowing it to remain a few moments, and applied a compress and roller. She was perfectly well in *five days*.

Case II.—Miss Jennie J., aged 14 years, of Christiansburg, Va., had been suffering with sub-periosteal abscess of the head of the femur, of one month's standing, engrafted upon disease of the hip-joint of seven years' duration.

There was great tenderness of the joint, but no swelling, heat, or redness. Proceeding as in Case I, I withdrew about three ounces of pus, after which she was perfectly relieved of pain and all symptoms of inflammation for four days; indeed, she was so well that I allowed her to return home, a distance of sixty-five miles, by railway. While on the way she injured the point of abscess, which caused it to refill. On my visiting her at home, I withdrew six or seven ounces of bloody pus, which had escaped through the opening of the periosteum at the point of puncture, causing the collection to occur among the soft parts, instead of directing its way beneath the periosteum. The tract of the first puncture re-opened, while tne last one healed. As soon as the patient was able, she returned to this city, and I inserted a drainage tube in the open track, by stretching the tube over a small probe. On withdrawing the probe the tube regained its original size; this caused intense pain, but of short duration. I found the tube gave perfect drainage, and through it I could wash out the cavity thoroughly, which I continued to do daily, using alternately solutions of iodine, zinc, and carbolic acid. Four weeks after, a small piece of bone made its appearance at the mouth of the tube, and in two weeks after this the abscess and track healed, with the exception of that portion of the track occupied by the inch and a half of tubing. As all tenderness of the soft parts had disappeared, I applied a Sayre's hip-joint splint, which she wears with perfect comfort, bearing her whole weight on the affected limb without a twinge of pain.

Case III.—General T.'s son, Jubal, of Liberty, Va., aged 7 years, suffering with sub-periosteal abscess of the head of the left femur, with all the symptoms of hip-joint disease present. On using the aspirator, I withdrew two ounces of pus. The cavity re-filled, and at the second operation I withdrew about twelve ounces of pus, which, as in Case I, escaped into the soft parts; and as it was so near the surface, I used the knife and inserted the drainage tube. Extension was applied by means of the weight and pulley, and the patient was well in two months; no splint was necessary, nor did he have to use crutches but for a short time.

Case IV.—A. B. G. Maddery, of Blue Ridge Springs, Va., octoroon, aged 17, had suffered intestinal obstruction for twelve days. In this case I inserted the smallest

needle of Dieulafoy's French instrument into the intestine five times—three times on the left and twice on the right side—the last time an inch to the right and half an inch above the umbilicus. So great was the pressure of gas, it caused a musical sound in its passage through the needle. After the gas caused to escape, I attached the aspirator and drew off an ounce of yellow, fœcal fluid. This gave great relief from pain, and in a few moments he passed a large quantity of gas, together with half a pint of gray, semi-fluid, fœcal matter per *vias naturales.* An extended report of this case may be found in the July number, 1875, of the *Virginia Medical Monthly*, as before stated.

Case V.—J. Pettigrew, aged 25, came to my office suffering intensely with an over-distended bladder. Three other physicians had attempted to introduce a catheter, but failed. After great difficulty, I succeeded in introducing a filiform bougie, but this only brought away a few drops of urine. Thinking it useless to make any further attempt, I inserted the No. 1 needle above the pubes and drew off about two pints of urine. He was up and about the streets the next day, without the slightest symptom of irritation; and strange to say, he did not apply for relief again until a month afterwards, when I found the strictures so unyielding I used Maisonieuvres urethrotome. He has remained well ever since.

Case VI.—Sallie P., aged 13 years, colored, perinephritic abscess of several months' standing, resulting from a local injury. Withdrew six ounces of pus; no after treatment; recovery perfect.

Case VII.—Mrs A. Adkerson, aged 45, Bedford County, Va. I was sent for to remove a tumor from the side of the neck. I found what appeared to be a growth of several months' duration, about the size of a Seville orange, beneath the sterno-mastoid muscle and jugular vein, and in close relation with the carotid artery. It was very firm to the touch; there was no feeling of fluctuation; but before cutting into such important relations I determined to use the aspirator. To our surprise, I withdrew about three ounces of disintegrated pus, loaded with scales of cholesterine. We washed out the cavity with simple cold water. The cavity re-filled with serum to the size of an English walnut, and then gradually disappeared.

Case VIII.—John, colored, aged 40 years. Both legs

had been amputated just below the knee joints, and immense bursæ formed at both joints. I withdrew three pints of fluid from one, and two from the other joint. He would persist in walking on the stumps, and the bursæ soon re-filled; yet no inflammatory symptoms followed.

Cases IX, X, and XI were cases of hydrocele, in which there was no return of the fluid after aspiration.

Cases XII and XII—one acute, and the other chronic, inflammation of the knee joint. No untoward result followed aspiration.

Case XIV.—John W., aged 18 years, of Bedford county, Va., suffering with a lardaceous cyst above the right orbit. After emptying the cyst, I injected a solution of persulphate of iron, as iodine had failed on the first trial. He walked home—a distance of twenty-five miles—the same day, which was intensely warm. I learned afterwards that he had a severe attack of erysipelatous inflammation, which resulted in a perfect obliteration of the cyst.—*Va. Med. Monthly.*

Advances in Pharmacy.

By Wm. H. Taylor, M. D., Richmond, Va., Reporter to the State Medical Society.

In reviewing the progress of pharmacy during the past year, while we fail to perceive that any discovery or suggestion especially striking has been evolved, still we find that workers in this department have exhibited their usual activity, and that our knowledge has been in a good degree thereby advanced. In the present report it is neither necessary nor admissable to aim at anything like a complete notice of what has been accomplished. Our object shall be rather to collocate such matters as are of interest to medical men, or such as are likely to concern those who practice pharmacy under the conditions which obtain in the state of Virginia.

In accordance with this plan we submit the following, which appears to us to comprise matters worthy of attention:

Dilute Phosphoric Acid.—It has for some time been noticed that certain samples of dilute phosphoric acid are prone to give a precipitate when added to tincture of chloride of iron. This combination being a favorite one

with physicians, so much annoyance has been occasioned to pharmacists in their efforts to form a clear mixture that a good deal of study has been bestowed in the endeavor to determine the conditions of the precipitation. Mr. Louis Dohme and Prof. J. P. Remington especially have examined the matter. These gentlemen show that the trouble arises from the use of acid made with glacial phosphoric acid incompletely converted into the tribasic form. This contains pyro-phosphoric acid and precipitates pyrophosphate of iron. The presence of a soda salt prevents the ready and complete conversion of the glacial into the tribasic acid, and Mr. Dohme finds from 14 to 15 per cent. of soda in the commercial article, and Prof. Remington finds in the handsomest specimen which he tested 27.43 per cent. soda. The latter gentleman learns that soda is added by manufacturers in order to make the product into a neat-looking, glassy solid, the pure acid being soft and glutinous. Dr. W. H. Pile, commenting on the processes of the U. S Pharmacopœia for preparing dilute phosphoric acid, concludes that the second process (that in which the glacial acid is directed) should, for the foregoing reasons, be rejected; the first process (that in which phosphorus is directed), however, being, in his opinion, exceedingly annoying as well as dangerous to perform (from which opinion some other operators dissent), he recommends the method of Prof. Markoe, in which bromine is used with the nitric acid—and this, too, notwithstanding he was himself blown up in one of his earlier attempts at it. This method is generally considered to be safe, if properly managed, but slow. The surmise of Prof. Maisch, that the acid made by it might be contaminated with phosphate of ammonium, has been shown to be correct, though the quanity formed is very insignificant. All the investigations point to the conclusion that, for making dilute phosphoric acid, only the acid made from phosphorus should be employed. Mr. Dohme, moreover, calls attention to the existence of arsenic as an impurity in phosphorus. He has obtained 14 grains of sulphide of arsenic (equal to 11¼ grains of white arsenic) from 360 grains of phosphorus—the quanity used to make 20 fluid ounces of dilute phosphoric acid. He considers it requisite to pass sulphuretted hydrogen through the acid to saturation, to let it stand twenty-four hours, filter from sulphide of arsenic, and, having expelled the sulphuretted hydrogen by heat, to finally

dilute to the proper specific gravity. He also thinks that the failure to produce a precipitate with tincture of chloride of iron should be named in the Pharmacopœia as one of the tests of the dilute acid.

Preservation of Infusions, etc.—Aug. Almen, by making use of the power of cotton to filter ferment-germs from air, has succeeded in preserving infusions, decoctions, syrups, etc , unchanged for many months. His method is to fill a bottle with the liquid to a point a little above the commencement of the neck and insert a cork, through which passes a very narrow glass tube about two inches long and loosely packed with cotton. The bottle and contents thus arranged are kept for some time in a water-bath at the boiling temperature. In this way the original air is expelled from the bottle, which is allowed to cool in the bath, and the air thus slowly re-entering is purified by passing through the cotton, To permit the occasional withdrawal of portions of the contents without the introduction of unfiltered air, a siphon reaching nearly to the bottom of the bottle is passed through the cork, its outer end being closed by a piece of India rubber tube and clamp.

Preservation of Hypodermic Solutions of the Alkaloids.—M. Patrouillard, of Eure (France), proposes to use the distilled water of *spiræa ulmaria* (queen of the meadow), for making hypodermic solutions of the alkaloids. Solutions thus made, he finds, have no disposition to mouldiness, and, unlike solutions in which glycerine is employed as a preservative, are not apt to give rise to local irritation.

Rectified Spirit in Place of Brandy and Whisky.—Dr. Adolph W. Miller makes a strong appeal in behalf of rectified spirit as a substitute for the expensive brandies and whiskies so generally prescribed. He bases his appeal on the ground of purity and economy, and observes that it has not been shown that the latter are therapeutically superior, or that their physiological action presents tangible points of difference. He considers it probable that when the system requires alcohol, it is as well satisfied with its cheap as with its expensive vehicles. Raw corn whisky, he thinks, is strictly pure, notwithstanding the populace is wont to belittle it by the bestowal of such opprobrious epithets, as "Jersey lightning," "pop-skull," "bust-head," etc. Looking upon the difference in liquors as probably one of flavor simply, he does not esteem it judicious to use those of costly flavors, especi-

ally when we consider the possible sources whence these flavors may be derived, among which he mentions creasote, tar, tincture of Russia leather, artificial benzoic acid (obtained from the drainage of stables), cocoanut oil (having the odor of negro perspiration), and butyric acid and ether (procured by aid of decaying cheese and putrefying meat). Dr. Miller further calls attention to the fact that it is probably impossible to obtain in this country the officinal wines in a state of purity, and suggests in their stead the white and red wines of the Rhine, officinal in Germany.

Senna Extracted by Alcohol.—C. Lewis Diehl, of Louisville, and L. Siebold, of England, have independently recommended senna extracted by alcohol (which is already in use on the continent of Europe), as a purgative in place of the crude drug. Senna thus treated loses little, if any, of its efficacy, while it becomes almost entirely deprived of its nauseous taste and odor, and of its griping qualities. Its active principle, cathartic acid, is in union with calcium or magnesium, forming compounds soluble in water, but insoluble in alcohol, and hence is not removed by this treatment. Mr. Groves, remarking on Mr. Siebold's statements, observed that he had prepared the pure cathartates themselves, and used them on himself and others; but, said he, "they are a nasty, griping purgative," of a character which precludes them from becoming favorites with the profession.

Preservation of Mucilage of Gum Arabic.—It is stated by Archer & Co., of Norfolk, Va., that mucilage of gum arabic may be preserved for a long time, if made with tolu water, (prepared by triturating ʒij of tincture of tolu with ʒiv of carbonate of magnesium, then with Oij of water, and filtering). The slight odor and taste of tolu is considered to be unobjectionable, and the mucilage thus made is admissable for most of the purposes for which it is employed.

Antiseptic Properties of Hydrate of Chloral.—Mr. T. Roberts Baker, of Richmond, Va., with the co-operation of Dr. Isaiah H. White, late Demonstrator of Anatomy in the Medical College of Virginia, has made experiments in reference to the asserted antiseptic properties of hydrate of chloral. He concludes that this agent possesses powerful antiseptic properties, that it may be successfully used for the preservation of anatomical preparations, and that

comparatively weak solutions will afford the most satisfactory results.

Pharmaceutical Uses of Milk Sugar.—In some parts of Europe it is customary to keep many poisonous articles triturated to a uniform powder with milk sugar, and many salts in solution of a definite strength (Maisch). Mr. Walter E. Bibby suggests this praiseworthy use of milk sugar for this country. He recommends that trituration of the poisons in common use be made of such a strength that each grain of the trituration shall represent a certain quantity of the poison—in the proportion, say, of one grain of the poisonous substance to seven grains of sugar of milk, making in all eight grains, the whole to be most completely and thoroughly triturated. He prefers sugar of milk to any other diluent, because of its hard, gritty, odorless, almost tasteless and but slightly hygroscopic character. The great advantage of this method is in the facility which it affords for the very accurate weighing of small quantities of active medicines. Mr. Bibby also, extending Mr. J. C. Biddle's plan of incorporating milk sugar with powdered squill to prevent it from caking, has applied it with great satisfaction to a large number of the gum-resins which are often required in the state of powder. He recommends either three parts of the gum-resin to one of milk sugar, or two of the former to one of the latter—the powder to be preserved in a well-stoppered bottle. For guaiac resin and squill, he uses nine parts to one of milk sugar. In this proportion (nine to one) he likewise finds that it retains camphor in powder better than any substance he has tried. He has also experimented with it in the manufacture of mercurial pill and mercury-with-chalk, and expresses entire satisfaction with his results.

Solution of Salicylic Acid.—The rather sparing solubility of salicylic acid is a considerable impediment to the employment of this agent, the use of which is so rapidly extending in so many directions. Many formulæ have been proposed for promoting its solubility, and from them we select the following: ℞ Phosphate of sodium or ammonium, 2 or 3 parts; water, 50 parts; salicylic acid, 1 part. ℞ Glycerine, 12 ounces; borax, 2 ounces; salicylic acid, 1 ounce. ℞ Spirits of nitre, 4 drachms; syrup of tolu, 1 ounce; salicylic acid, 5 grains. ℞ Sulphite of sodium, 2 parts; water, 50 parts; salicylic acid, 1 part. ℞

Alcohol, 4 drachms; water, 3 drachms; glycerine, 1 drachm; salicylic acid, 4 grains. ℞ Solution of acetate of ammonium, 1 ounce; salicylic acid, 16 grains. The following remarks of Mr. Chas. Becker are of value in this connection:

"The addition of the phosphate of ammonium or sodium has been recommended to increase the solubility of salicylic acid in water; but these agents really amount to but very little, as a solvent of one part of the acid in three of either phosphate, and fifty parts (by weight) of water, throws down a precipitate in less than twenty-four hours. An addition of two parts of sulphite of sodium to one of salicylic acid, in fifty parts of water, precipitates in a few hours. Borax, in the proportion of two parts to one of salicylic acid and fifty of water, precipitates slightly after twenty-four hours; a solution of one part each of salicylic acid and borax in five parts of glycerine and twenty-five of water is permanent; while the same proportion of borax, acid, and glycerine in fifty parts of water will precipitate after twenty-four hours. A solution of one part of acid to two of borax in twelve parts of glycerine, made with heat, is permanent; but when one part of this solution is diluted with three parts of water, which makes it two parts of salicylic acid, four of borax, twenty-four of glycerine, and ninety of water, a cloudiness appears in a few hours. One part of salicylic acid with one part of water of ammonia (20°) forms, with ten parts of water, a permanent solution; this has a light-brownish color, a very faint odor of ammonia, a very distinct, sweet taste of the acid, and a slight acid reaction on litmus paper. Salicylic acid is soluble in ten times its weight of dilute alcohol at a temperature of about 80° F., in one and a half times its weight of alcohol (0.835 sp. gr.), and in twice its weight of sulphuric ether. It is nearly insoluble in cold oil of turpentine, but hot turpentine dissolves about five per cent. of its weight. Its alcoholic solution has a decided acid reaction on litmus paper. An addition of one-fifth of one per cent. of salicylic acid to aqueous infusions will preserve them for weeks, and the same proportion added to syrups made with fruit juices, while it will not arrest fermentation after such has set in, it will prevent the same. The acid used in the above experiments was of Schering's make, and perfectly white and inodorous. When one part of salicylic acid and two parts

of olive oil are heated together, they form a homogeneous mixture admirably adapted for application to surfaces. The oil will separate to some extent on standing for a time, but agitation will easily combine it again."

Compressed Pills.—An old method of making pills by simple compression of the materials, without an incipient, has been revived, and is considered to be very advantageously applied to certain substances.

Cachet de Pain.—These envelopes of bread for the tasteless administration of medicinal powders are prepared by enclosing the substance between two concave wafers, one of which is slightly moistened, and which are then caused to adhere by means of an appropriate press. Their preparation requires some little skill; but when this has been obtained they can be made very rapidly, and are very satisfactory both to physician and pharmacist. The approved method of taking them is with a spoonful of water, in which the cachet has been allowed to soak for a few seconds till it has become soft.

Solubility of Coated Pills.—To determine the relative solubility of coated pills, Prof. J. P. Remington has experimented with pills exposed in acid, alkaline and plain water, and in water containing digestive material, and infers that the order of solubility is uncoated pills, sugar coated, compressed, and gelatine coated. Mr. Samuel Campbell objects to Prof. Remington's manner of experimenting, as indicating rather facility of disintegration and not solubility. His own experiments with a solvent corresponding to the gastric juice indicate that compressed pills are most soluble, the pills of the U. S. Pharmacopœia coming next, then the sugar coated, and lastly the gelatine coated. Prof. Remington, replying, maintains that his conclusions are correctly deduced. His results also show that the cachet de pain is superior to any method of coating, in point of permitting the medicine to dissolve or digest readily.

Disguising the Taste of Cod Liver Oil.—Chloroform is highly recommended, in the proportion of one fluid drachm to one pint, to remove the unpleasant taste of cod liver oil. It is also recommended for the same purpose as an addition to bitter tinctures and mixtures.

Disguising the Taste of Castor Oil.—A modification of the old and favorite mode of administering castor oil in orange juice is offered by Potain. He directs that the

juice of half an orange be squeezed into a glass, and after carefully pouring the oil upon this, to add the juice of the other half of the orange, so as to enclose the oil. If pains be taken to avoid mixing the layers, the combination can be swallowed, it is said, without the least perception of the flavor of the oil.

Acid Infusion of Opium.—An acid infusion of opium, an old preparation, has been revived, and obtains much favor on account of its alleged indisposition to produce head symptoms. It is made with powdered opium, ʒj; muriatic acid, f℥j; distilled water, f℥xv; macerate fourteen days, filter, and add sufficient water through the filter to make up to a pint. The dose is twenty to forty drops.

Acetic Acid for Making Blistering Liquid.—The experiments of Mr. Jas. Deane, reported to the Pharmaceutical Society of Great Britain, show that a blistering liquid materially better than the ordinary article can be made by using acetic ether as the solvent in its preparation.

Incompatibility of Calomel with certain Bromides.—Mr. Norman A. Kuhn has studied the action of calomel with the bromides of potassium, sodium, ammonium, and zinc, and finds that a portion of the calomel is converted into a soluble mercuric salt, a considerable portion of the calomel, under some circumstances, being thus changed. This new-formed salt is poisonous, a kitten having been killed by some of it in the course of an hour and a half.

Fœtid Breath Accompanying the Use of Bismuth Preparations.—The occurrence of a very disagreeable fœtor of the breath has been from time to time observed during the administration of preparations of bismuth. A case of the kind gave rise, a few months since, to an interesting discussion in the Richmond Academy of Medicine. Two or three explanation have been heretofore suggested, but the true cause is now assigned by Mr. G. Brownen to the presence in the bismuth of tellurium—a substance which, unless it is grievously belied, is fully competent to do all to the breath that has ever been smelt in these cases, and more.

Cleansing Bottles.—Time and again the common practice of cleaning bottles by aid of shot has been condemned. It is well known that bottles thus cleaned may impart to certain liquids put into them an undesirable, if not dangerous, amount of lead. In place of shot, Fordos suggests fragments of iron, which are as well suited to the pur-

pose, and though they are liable to become oxidized, the ferruginous compound not attaching itself to the internal surface of the bottle is easily washed out.

Removing Stains Caused by Nitric Acid.—Those who have much to do with nitric acid, are unpleasantly familiar with the provoking persistency of the stains which it makes upon the skin and clothing. The application of an alkali, so potent in oblitering the marks of sulphuric acid, is powerless against these—in fact, rather making them more pronounced. It is, therefore, gratifying to know that, if not too old, they may be removed by moistening the spot well with a solution of permanganate of potassium, rinsing with water, and removing the resulting brown manganese stain by means of solution of sulphurous acid.

Native Sulphide of Antimony.—An analysis by Mr. Wm. C. Sheffield, is published, of eleven samples of so-called sulphide of antimony, procured at as many different stores in four cities of Ohio and Michigan. One of these was nearly pure sulphide, one contained 31.5 per cent. of sulphide, and the rest none at all. The extraneous substances consisted mostly of charcoal, silicious matters, and carbonate of calcium. In some of the samples there was a considerable amount of arsenious sulphide. The writer insinuates that there may be some difficulty in making the officinal antimonial preparations in the prescribed manner from samples of sulphide which, like most of these, contain no antimony; and also intimates that a grievous wrong is perpetrated upon afflicted horses and cows (in whose pharmacopœia antimony holds a high and mighty place) when medicaments made from this sort of antimony are commended to their lips.

Explosive Prescriptions.—It is a solemn thing when a physician puts a pharmacist at work upon a concoction which may blow him up. He should, therefore, forbear to prescribe mixtures of permanganate of potassium with alcohol. Warning had been given of the danger of this combination some time ago, but a somewhat recent case has called attention to it. A bottle containing ten parts permanganate of potassium to fifteen parts each of alcohol and water, corked and tied over, exploded, doing bodily harm to the bottler. Experiments subsequently made showed that this occurrence, under the circumstances, was to be commonly apprehended. To the list of explosive

prescriptions (which has now attained to a somewhat formidable length) must be added mixtures of fluid extract of uva ursi with certain samples of spirits of nitre. Furthermore, a mixture of chromic acid and of glycerine has been known to explode with a violent detonation. It appears, therefore, in the light of these facts, that it might be judicious for physicians to furbish up their chemical lore, when about to devise new formulæ. A knowledge of chemistry is generally conceded to be highly useful to a medical student, because it assists him in securing the vote of the professor of chemistry at the final examination; but practitioners get along very well indeed without it. It has, however, now become of vital importance to the apothecary, and he will do well to prayerfully consider before he puts together the strange combinations commended to him by physicians who do not see what earthly use chemistry is in the practice of medicine.—*Va. Medical Monthly.*

Microscopy.

Post-Centennial Microscopical Notes.

By J. Gibbons Hunt, M. D., of Philadelphia, Pa.

After a great exhibition, like the one recently held in our city, it may not be unprofitable to note some facts which have a bearing on that branch of human skill and science which is supposed to be cultivated in this section of the academy, viz., microscopy.

Conscious incompetency would deter me from attempting a description of all the microscopical exhibit offered at our Centennial. I will ask you, therefore, to consider with me some subjects in which you and all workers with microscopes are interested, but which did not and could not find fitting expression in the reports of the eminent judges on that occasion. I take it for granted that we are at liberty to speak of the results of work, without embracing with admiration or neglecting with total indifference the workman, and this I propose to do from my own stand-point of observation, which is that of an interested observer of the field, rather than an active laborer therein.

Common courtesy leads me to speak first of the well-

known foreign instruments which were displayed doubtless for the especial purpose of being looked at by all observers. Ornate show-cases have no essential connection with microscopy, they belong, in my opinion, to a distinct branch of mechanics. I shall not, therefore, entertain you with their description. Neither does needlessly massive brass-work necessarily give stability nor perfect motions to microscopes; therefore such specimens of brazen elephantiasis I will not further diagnose at this time.

The improved form of the Ross instrument in which the fine adjustment is removed from the upper and placed beneath the lower end of the body, is a great improvement over the old pattern. Greater accuracy of motion is secured along with improved appearance. The wart is placed under the nose instead of on it, that is all. Like most other English microscopes, *the distance between the focal point and eye-piece is changed every time the fine adjustment is touched*, and, therefore, the magnifying power is constantly altering, and is perceptible under highest powers. The new form is stronger and more steady than the old one, and less massive. The binocular prism is a fixture in the body, and does not change position while focusing. The Ross stage is still too thick, necessitating special and expensive apparatus for obliquest light. The finish of these instruments is good, but not the best, and the motions are smooth; but, I have reason to believe, had the hypercritical judgments of American microscopists been earlier known, that eminent firm would have displayed superior work to that we have seen.

Beck's large stand has more grace of form than any other foreign microscope; and, in excellence of finish, was superior to any other foreign instrument on exhibition. In my opinion the stage is mechanically defective. It has no adjustment for eccentric concentric rotation, and, therefore, seldom turns *in* the optical axis. Its mechanical arrangements for motion do not remain in order without frequent adjustment, and this results not from neglect of workmanship, but from defective design. Better abandon racks altogether in stage motions than spend time in adjusting bad ones. It is common experience, in this country, that foreign-made racks are not equal in smoothness of motion to those made at home.

The stands exhibited by Mr. Crouch displayed great excellence of workmanship, and this maker's aim has been

to cheapen production without sacrificing commercial good work, and, I think, he has succeeded. His motions are made with more than ordinary foreign care, and his instruments therefore wear well. Crouch's best stands are supplied with the concentric adjustable stage, thus adopting Zentmayer's idea, introduced sixteen years ago. It is to be regretted that Mr. Crouch allowed his name to be connected with the introduction of the adjustable rotating stage, for it is exclusively an American invention.

The stands of Nachet are not elegant in design, neither is it the experience of workers here that they are conveniently adapted to all kinds of scientific work, nor do they continue in perfect condition after much use. I can remember the time when the American market was largely supplied with indifferent French microscopes, but, happily, that day is past.

Hartnack's intruments were not on exhibition, but previous experience has taught me they compare unfavorably with other reputed first-class instruments in workmanship and finish. After experience with American and English microscopes they are unsatisfactory in the extreme. Some German microscopists, and their imitators elsewhere, indulge the sickly sentimentality of lauding Hartnack's instruments as though *they only* were competent to do best work. In every respect, when compared with American and English first-class work, they are inferior. Clever working instruments in a restricted way they are, but they are not the best.

From Germany I have never seen first-class microscopical brass-work, and much of it has come under my notice. German microscopes are creations of deformity, and, speaking comparatively, are not instruments of precision at all. In the great struggle for the survival of the fittest, they will rapidly perish from sight, as rapidly as workers become instructed in such things.

American microscopes were in the minority at our exhibition, if we estimate numbers alone. Not so if we consider beauty of design, workmanship, and originality of construction. Among such work, claiming to be first-class, Zentmayer's is pre-eminent. It has no superior anywhere. The stands he placed on exhibition were the best microscopical work there. In all his best stands the adjustable rotating concentric stage is used, and has been for sixteen years, long before any foreign maker conceived the idea.

The "American Centennial" stand, for the first time exhibited on that occasion, is worthy of special notice. It combines specialties of construction not found in any other instrument, and its mechanical finish is more perfect and displays superior workmanship to all others in the exhibition or elsewhere. It is the only microscope stand constructed on accurate scientific principles. All its optical and mechanical parts are built around one primary centre, which is the focal point of the instrument. When placed horizontally, in the position for drawing, the entire microscope revolves around a centre which lies perpendicularly under the optical focus. A graduated base gives facility for approximative measurement of the angular aperture of objectives. The top of the stage is elevated accurately to a level with this centre of rotation, and revolves concentrically around the focal point. The stage is accurately graduated, and is adjusted by screws which are turned only by screw-drivers, and when once centered is not easily disarranged by careless trifling with inviting milled-head screws. All the illuminating apparatus, including the mirror, turns around the same centre, remaining always in focus, and all degrees of oblique light from 1° to 90°, are read off at sight on a graduated index level with the stage. This obtaining and registering of obliquity was perfected two years ago, and similar facility is not found in any other microscope. Its scientific value is apparent.* By turning a large milled-head screw a stage of extreme thinness, which likewise rotates concentrically, may be substituted for the larger one, and now your achromatic condenser and mirror may rise above the stage for illumination of opaque objects, and still the degrees are registered. The fine adjustment has been removed from the end of the body, the wart has been operated upon, not by Esmark's, but by Zentmayer's process, and not a drop of blood was spilled. It has disappeared entirely. Still a peculiarly shaped, large milled-head graduated screw, which gives a comparatively rapid or extremely slow motion, moves a slide independent from the rack-motion, and focuses the entire optical body, thus always preserving

* It is stated, in the *Naturalist* for December, that a firm from Rochester, New York, "hinged the sub-stage bar at the level of the object," but the small stands exhibited by said firm at the *opening* of the Exhibition were not so made, neither had they any facility for registering obliquity. The firm in question did not grasp Zentmayer's idea at all, and, hence can justly claim no priority of invention.

the same relationship between the objective and eye-piece, an arrangement not found in any first-class English microcope. The binocular prism is ground with equal skill and adjusted with more care than in most other instruments that have ever come under my examination; hence, both fields appear coincident, and do not resemble the longitudinal section of a cylinder, one side up, quarter way round depressed.* Here, then, we have a microscope of home production, but of surpassing precision, and which has taught the skilled English makers a useful lesson. If they propose to compete for the American market they must send hither better work. Thus far I have spoken chiefly of first-class microscopes, and only of those which have come under my notice.

The so-called student's stands are of equal importance, though less elaborate. All makers, foreign and domestic, furnish enough of these. Some are fit instruments for scientific work, very well adapted to the coarser observations in biology; but most of this class are not instruments of precision. It is a mistake to place in the hands of beginners bad tools to work with. Wherever a microscope is cheapened in cost by inferior workmanship, it is unfit for the student. It had better be in the hands of the expert who will eliminate its errors by his previous experience. Drop all mechanical luxuries in order to reduce expense, but give the best workmanship to the beginner. Much of this class of work sent here from abroad is so inferior that time would be wasted in speaking of it further.

In the construction of objectives great advances are to be noticed. On this subject my remarks will not be confined to lenses only which were on exhibition.

The patent system of Mr. Wenham, by which corrections are obtained by a single flint lens, was exhibited very fully before the judges. From the $\frac{1}{5}$th to the $\frac{1}{15}$th were on trial. They gave evidence of undeveloped microscopical potentialities of an advanced order, but their mountings and the mode of testing, justice compels me to say, were unsatisfactory. I therefore forbear judgment until I shall see more careful work.

Mr. Crouch's lenses were of the first grade Those on exhibition and those seen since, without revealing any ex-

* The sub-stage is cut entirely through transversely, which gives unusual facilities for accessory illuminating apparatus.

traordinary optical qualities, are exceedingly fine in field and definition for their cost. Their corrections for achromatism resemble strikingly the Wenham lenses.

Beck's objectives form a series with which I am familiar, and they retain their character for many excellent optical properties. Without aiming at maximum angle, they are as nearly achromatic as lenses can be made. Their $\frac{4}{10}$th is not inferior in performance to any other of equal power made, and, in use, is the most satisfactory lens of the series. But I must say these objectives—the adjustable ones—are not accurately mounted. The screw-collar jolts around from degree to degree in a way that forbids hope for the finest performance. The old plan of adjustment is retained, viz., of traversing the front combination, which must be comparatively defective. Lister's plan of adjustment and correction did well enough for twenty-five years ago, but modern microscopy demands a higher grade of work than that.

Fortunately, that demand is satisfied. The new $\frac{1}{8}$th, so called by Powell & Lealand, brought into this non-achromatic world by what process of microscopical parturition we are not informed, ranks highest of all foreign objectives I have yet examined. Its corrections reveal a bluish-green light, and its definition marks an entire new era in English microscopy. It is difficult indeed to judge of this grade of lens because of our former defective experience. I cannot call its definition brilliant, but it is sharp and very accurate. On the margin of the field a good image is formed, which is generally not the case in lenses of extremest angle. The mechanical mounting and splendid finish of this truly grand objective should be a stimulus and admonition to other foreign makers to do likewise. It is useless to spend the time in such patient optical work as this lens demands if the mounting is defective. It is superbly mounted. Genius never clothes an angel of light in a beggar's garment. The American plan of traversing the back combination is adopted, and every expert knows its value.

From Germany I have seen nothing respectable. Several of Zeiss' objectives have come under notice recently. His lower powers which I have seen are unfit for use. His $\frac{1}{25}$th fails in revealing details which our lower powers show better. The brass-work is specially inferior. Amplification is not definition. Power "is necessary to

transport mountains; definition and precision we demand in studying atoms." I do not see in Zeiss' objectives too much of Professor Abbe's mathematics, but I do see an absence of finger-skill which stamps them with a national characteristic. Mathematics never made an objective. Like theology, it says, this is the way, walk in it. It is the manner of walking in that way, in each case, which is the business. Yet these and similar grades use the lenses continually recommended to students. This is a serious mistake, and is the explanation of much misinterpretation in biological work. But these foreign lenses are cheap! For a dollar an optician will mount an uncorrected lens which will do as good work. Recall the results obtained by Swammerdam, who worked successfully at the anatomy of insects, and who discovered the values of the lymphatics in 1664. Of Leuwenkock, who, with microscopes of his own make, better than some of which I am now speaking, and cheaper, discovered the organic muscular fibre cell, now attributed to Kolliker, and who described accurately the fibres of the crystalline lens of the eye. Of Malpighi and Grew, who first used the microscope in anatomy, and who made many discoveries in the structure of plants. Of Dr. Hook, and Baker, and Adams, and the earlier work of Ehrenberg. They observed with cheaper lenses and did better work than can be done with the glasses of which I am now speaking. Is anything cheap which misinterprets nature? Do you give the student in astronomical science, or in spectroscopy, or in surveying, or the chemist, or in any other branch of mechanics, bad tools to work with? Why should the biological student be specially degraded? Give him the *best* objectives. Cheapen their production as much as possible, but never at expense of their optical performance, because his function is to interpret, not only the genesis and structure of present organization; but equally, the vast and sacred mysteries of extinguished ages. True microscopy is the fertile branch of the great tree of æsthetics. Its revelations are the minute and beautiful things in nature, and when these are shown without optical distortion, we realize that splendor and grace are the common garments of all.

American objectives are not behind the best from abroad. I shall speak chiefly of those made by Mr. Tolles, because others of home product which I have seen have

been disappointing. It is more difficult to judge of Mr. Tolles' work than of that of any other optician, because no two of his lenses that I have seen are alike; and that dissimilarity is evidently designed, and not accidental. Most surely his guide is not Lister, nor Amici, nor Abbe; but his genius is more comprehensive than all these combined. The true optician is he who can vary his formula at will to obtain other or finer results. To work by rule is mechanical and may be taught an apprentice; it is never marked by progressive excellence. The power to direct your steps at will, while threading the labyrinth of optical construction, marks the master. That Mr. Tolles can do. In him are greater optical possibilities in the construction of lenses for the microscope than in any other maker, and my judgement is based solely on work. Still I have seen many lenses of his make which disappointed me greatly, because to gain some *special* point other qualities which I happened to value most were sacrificed. But when I detected, by larger experience, that all this was designed, and not accidental, my appreciation increased.

It is more amusing than instructive to hear learned professors define the limit of microscopical vision and the angle of aperture of objectives. They gravely tell us moreover that penetration and resolution are incompatible qualities in lenses. Possibly, in a degree, they may be so, but that degree is not yet a matter of professional experience. I can indicate objectives of Mr. Tolles' make of extreme angle, yet their penetration is so extraordinary, that they form the best lenses I know for best histological work by central light, showing details with a brilliancy which I never saw otherwise. A recent $\frac{1}{10}$ which came into the world not by oblique presentation exclusively, is the highest standard to which I can refer. It is high commendation to compare any lens with Powell & Lealand's new $\frac{1}{8}$, but Mr. Tolles' last $\frac{1}{10}$ is superior in most respects. Alike in power, the English lens has a remnant of London fog in its construction; the Boston one is brilliant and clear as crystal. Moreover the Boston glass shows clearly structural details beyond the penetration of the English lens, without change of focus. Both are used wet or dry. The $\frac{1}{8}$ has a separate front, the $\frac{1}{10}$ is set for dry work by adjusting the screw-collar; this plan is more convenient than the separate front. A recent $\frac{1}{5}$,

bearing the name of Spencer, from whom we naturally expect much, gave results not elsewhere obtained in lenses of that grade and cost—student's objective at $20.00 —but it was triumphantly under-corrected, and all ablaze with orange light.

I see cause to fear that micro-photography may, for a time, retard the best construction of lenses for histological work; especially that oblique micro-photography, whose best results are often only defraction spectra, which leave it doubtful whether the lens or illumination was the chief factor in obtaining the result. Photography, at its best, gives only approximate representations of delicate structural details; and it is not yet proven that objectives so afflicted with strabismus are best for biological work.

Our best modern high-angle lenses have in them optical capacities not adequately developed by our present defective plans of illumination. Universal absence of *absolute* central light marks most microscopes, and accurate means of obtaining it, modified or concentrated at will, is a greater need at the present time, than further improvement in lenses. If we observe critically, all minutest details, as shown under most microscopes, are fringed with diffraction phenomena which can be removed often by simply improving the light. Even for coarser microscopical work attention to the light is universally neglected. Most instruments have no adequate provision whatever for accuracy of observation, hence misinterpretation is so common under the higher powers. The American microscopist has lenses, in common use, which will easily define bacteria if our means of illumination shall be improved.

The results of microscopical work have interested our members on many occasions. Processes of demonstration, of comparatively recent origin, have given preparations of higher character than were attainable before. Our market is still too liberally supplied with foreign refuse material of this kind. Best work, in this department, is always kept at home. We import that which is unsaleable abroad. To this statement there are a few exceptions. In animal histology no one now hopes to see any foreign work worth having. In pathology, always more difficult of demonstration than normal tissues, we expect neither appreciation nor help from beyond the sea; yet it is not from talking members of pathological societies that we obtain

best work. The Army Medical Museum, at Washington, has produced the finest pathological work, that is, work retaining most structural details, if not most neatly mounted, that I have seen from other sources. In our Centennial there was nothing respectable from abroad in this department. Some of this imported stuff from Germany is abominable.

In demonstrating and mounting botanical subjects, this country is immeasurably in advance of all others. Some workers here offer preparations which are models of technological skill and of surpassing neatness. Every cell is revealed without dissection, and differentiated by double-staining in most beautiful manner. But in this kind of work *all* structural details are not preserved. The cells are empty. None but the botanist will ever do best botanical microscopical work. If he knows not by previous study of the fresh tissues, what nature puts in them, he will not be successful in revealing them best in mounted preparations.

Biological science is not to be studied from microscopical slides, no more than from stuffed animals or dead shells in our museums. Botanists do not get best education by pouring over mounted specimens, however beautiful they may be, no more than they do by daily browsing on the dessicated vegetation in herbasia or hay-stacks. We must go to the living for the best use of our instruments, and a knowledge thus obtained of structural detail is essential before any attempt should be made to preserve such details in mounted preparations. Some post-centennial work in botany, aiming at that result, has been exhibited before the section in which every cell showed the cell anatomy; the nucleolus, nucleus protoplasmic contents and cell wall were all apparent at one view. Demonstration, which falls short of this, is unsatisfactory because important morphological details are not brought out, and such work, like fossils in the rocks, belongs to a past era in microscopical technology.

San Francisco Microscopical Society.

One of those peculiarly enthusiastic meetings that occur periodically was held by the San Francisco Microscopical Society on Thursday evening, February 15th, in

their new rooms, which were crowded with Resident, Honorary, Life and Corresponding members. Mr. E. A. Burdick, a member of the American Postal Micro-Cabinet Club, on a circuit located in Wisconsin, was present as a visitor.

Mr. Hanks added to the cabinet some fossil (?) shells found piled in great heaps by the action of the winds, on the borders of New River, a branch of the Colorado.

Mr. J. P. Moore donated three slides mounted by him in glycerine with the following objects: *Polysiphonia Woodii* (?), *Ceramium Diaphaneum*, and *Gelidium Corneum*, all being specimens of Algæ from the Pacific Coast, the first and third being in fruit showing spores, tetraspores and ceramidium.

Mr. Kinne presented two slides mounted by him with marine diatoms, from Oakland Creek, showing frustules of three species of pleurosigma, two of navicula, and one each of pinnularia and melosira.

Mr. Burdick presented two slides mounted by him with crytals in skin of Macrosita Carolina and Hyalodiscus subtilis, *in situ*, transparent.

The slides donated were examined and found to be all worthy additions to the Object Cabinet, while those mounted in glycerine, by Mr. Moore, provoked some discussion as to the merits of that medium as compared with the use of salicylic acid in particular.

Dr. Edwards instanced several cases where the latter had worked admirably, where glycerine failed, particularly in mounting objects with calcareous matter in their tissues.

DIPHTHERIA ON THE STAGE.

Dr. S. M. Mouser exhibited a slide mounted by him with a portion of diphtheritic membrane, and made some extended remarks regarding the fungoid theory of its development; he assuming that such was not the cause of the disease. He said that the members would find in the specimen of diphtheritic membrane on the slide, epithelial cells in various stages of formation and disintegration, mucus and pus corpuscles; also, spindle-shaped bodies, distributed with some regularity, indicating some sort of organization, though there are no indications of blood vessels. Some authors suppose the membrane to be composed of hardened mucus. It seemed to the Doctor to be an exudation, and that the spindle-shaped

bodies alluded to were fibre cells, or smooth muscular fibre. He had not been able to detect anything that he could say was certainly fungi, although they have been thought to cause the disease. In 1858 Dr. T. Laycock, of Edinburg, conceived the idea of its being caused by a parasitic fungus, and the fact was noticed in *Braithwait's Retrospect*, in July, 1859, Part 39. In *Aitkin's Practice of Medicine*, Vol. 1, page 516, it is said: "Vegetable growths, as oidium, occur in the pellicle of diphtheria from time to time, and have been reported by some as a constant occurrence. It is, however, by no means so, and the accidental existence of such vegetable growths is no evidence that epiphytes have any essential connection with cases of diphtheria." In Beale's *Microscope in Practical Medicine*, page 188, he says: "It is true that in many cases sporules of fungi are met with, but many circumstances prove satisfactorily that they merely grow in the false membrane as a nidus favorable to their development, and are not to be regarded as the cause of its production." On the page opposite this paragraph he has two figures, neither of which shows any fungi.

This fungus theory was revived in Germany, a few years ago, and they made use of salicylic acid to destroy the fungi; they have abandoned this, however, and are now using, as a local application, warm water and steam. The Doctor concluded with the statement, that "the generally received opinion in the medical profession, at the present time, is that the disease is constitutional in its nature, and I think microscopic observation does not prove the contrary."

The remarks of Dr. Mouser being so essentially in opposition to those expressed by Dr. Edwards at a former meeting, the latter gentleman was requested by Dr. Woolsey, of Oakland, who seemed to favor the fungoid theory, to say a few words on his side of the question. Doing so, he alluded to the fact of the microscope being the only instrument able to decide the question, and then must be used by careful illumination and manipulation, with powers of one thousand diameters and upward. He believed that diphtheria was local in the beginning, and spread by fungoid growth, and explained what he had seen, as well as others who had made the matter a study, in the way of watching the growth and development of the fungus. He used the blackboard to explain the sub-

ject, and certainly convinced all present that his faith was firm regarding his theory, and that he believed the proper use of salicylic acid would destroy the fungus and cure the disease.

After an interchange of general conversation the matter of illumination came up while examining the markings on some of the diatoms presented earlier in the evening, and as Dr. Edwards is not only an authority on diatoms, but has naturally made the study of the best method of bringing out their beautiful peculiarities very thorough; he was requested to state to all, what he had to one or two privately, regarding

THE BLUE RAY IN MICROSCOPY.

With a few remarks as a preface, he proceeded at length to explain and illustrate a matter which he stated he considered of great interest and extreme importance to every member as a working microscopist, namely, the character of the mode of illumination, made use of in viewing more particularly the finer so-called "test objects," the diatomaceæ. His first experiments were made in the summer of 1863, when he was endeavoring to improve the modern achromatic objective. The results were made public at meetings of the American Microscopical Society, November, 1865, and subsequently. He first found that when using two objectives of the same power and angular aperture on the same object, that with one he had to use a greater obliquity of the illuminating beam than the other to obtain the same result. If now a piece of blue glass were interposed in the course of the beam of light, details could be seen with the poorer lens as well as with the better one, with the same obliquity of illumination, and with a less obliquity with the best lens. Also, if yellow glass were used, a greater obliquity was necessary with both lenses. Also details were better seen with sunlight than with kerosene light, better with kerosene than gas, better with gas than with a candle; all with the same obliquity of illumination. The blue color most favorable for illumination he found to be that answering to the point in the spectrum where the maximum of chemical force or actinism resides. From this he framed a theory ot vision, that it was due to the chemical action, and further experiment and experience tended to confirm this conclusion. The best way, he found, to

get such monochromatic illumination was by means of a prism properly mounted. Evidently sunlight was the best to use in microscopic work—kerosene next. He begged to remind the members that color-blindness, or the inablity to distinguish colors, was by no means uncommon, and that the eyes were not always to be trusted. He called their attention to the fact that a kind of light could be used to illuminate objects that would change their apparent character very materially, or even make them disappear entirely, and, in illustration, illuminated a colored chart of the spectrum by means of gaslight, kerosene light, sodium light and magnesium light. In the sodium light, all the colors but yellow disappeared, while in the magnesium beam, certain colors appeared that could not be seen in gaslight. He also showed how colors could be tested by means of the spectroscope, and said that this was one of, if not the best method of, testing the correction for colors of microscope objectives. In this way he showed that this now much-talk-of "mazarine blue" glass was not blue at all, but more purple, as it transmitted a large amount of red light along with blue and other colors.

Fairmount (Philadelphia) Microscopical Society.

Meeting held February 15th, 1877. The Secretary read a paper on *Fucus Vesiculosus*, giving a detailed botanical description of the plant and its method of reproduction. Reference was made to the researches of Thuret on the fertilization of the sporangia by the antherozoids. The practical application of Kelp—the ashes of the dried plant —were dwelt upon and fully explained. The paper was illustrated by slides of the receptacles.

The President, Dr. Griffith, exhibited a slide of "Pacinian body from mesentery of cat," double stained, by means of carmine and indigo-carmine. It was accompanied by a very lucid description of nerve fibres and the part they assume in the animal economy.

Two currant twigs were shown, one of which was completely covered with the fungus, *tubercularia vulgaris*, the other showed the transition from this fungus to *nectria cinnaburina*. Verbal descriptions were given of the fungi and the relations they sustain to each other.

Specimens of natural and also calcined infusorial earth,

such as used in the manufacture of dynamite, were shown and examined under the microscope.

This Society has recently had quite an honor conferred on it by the election of its Secretary Wm. C. Stevenson, Jr., as a corresponding member of the Belgian Microscopical Socity of Brussels, Belgium.

Gleanings.

ECZEMA AND PSORIASIS—ARE THEY LOCAL DISEASES?—The Dermatological Section of the International Medical Congress, after hearing and discussing a paper on this subject, read by Dr. L. D. Bulkley, adopted the following conclusions:

1. Eczema and psoriasis are distinct diseases. The former is to be clearly distinguished from artificial dermatitis, and the latter from the eruptions of syphilis, scaly eczema, and psoriasis.

2. Eczema and psoriasis cannot own a double causation or nature, at one time local and at another constitutional, but, with other diseases, may have a two-fold cause, a predisposing and an exciting.

3. Eczema and psoriasis, in many of their features, resemble the accepted constitutional diseases more than they do to those recognized as local.

4. Eczema is most properly likened to catarrh of the mucous membranes—it is very probable that some attacks called catarrh are eczema and psoriasis of the mucous tissue.

5. Both eczema and psoriasis resemble gout and rheumatism in certain respects, and are dependent upon a somewhat similar, although as yet unknown constitutional cause; much of the skin lesion must be looked upon as the local result or remains of the diseases.

6. There as yet exists no microscopical or physiological proof that eczema and psoriasis are the sole result of local cell disorders, either congenital or acquired, or due alone to perverted nerve action.

7. Local causes play a very important part in this etiology of eczema. They are probably inoperative in psoriasis.

8. Local treatment is often insufficient alone to remove the lesion of eczema and psoriasis, and cannot prevent or

delay relapses; its success does not necessarily demonstrate the local nature of these affections.

9. Constitutional treatment alone and singly can cure many cases of eczema and psoriasis, and prevent or delay relapses in a certain proportion of cases. Under constitutional treatment is included every agency not properly classed among local measures.

10. The total weight of evidence and argument is that eczema and psoriasis are both manifestations of constitutional disorders, and not local diseases of the skin.

Iron as a Reconstructive Agent.—M. Dujardin Beaumetz ("Boston Medical and Surgical Journal") is not a believer in the therapeutical virtues of iron in anæmia and chlorosis. Notwithstanding the existence of a lessened quantity of iron in the blood of anæmic and chlorotic patients, he says that this diminution is of very little consequence, being ten to twenty centigrammes at the most, of the total amount of two grammes of iron in five litres of the blood of an averaged-sized adult. Now, according to Boussingault, the daily food introduces into the body ten to twenty centigrammes of iron; consequently, the loss of iron may be made up by the food alone. Therefore, instead of supposing the mineral tonics to replace directly what the blood lacks, it is much easier to believe, he says, that these act in anæmia simply as stimulants; and in order to enrich the blood we should have recourse to those medicinal agents which excite nutrition. In young girls, M. Beaumetz is much better satisfied with gymnastic exercise and hydrotherapy than with ferruginous medicines. Moreover, if the latter are oftener powerless in chlorosis, they produce harm by disturbing the digestive functions. Arsenic is more valuable than iron.

Alcohol as Food.—Dr. R. T. Edes, in a study on this subject, draws the following conclusions:

1. Under some circumstances alcohol may be a food. Thus (*a*). Deprivation of nourishing and sufficiently varied and abundant rations, as in the case of soldiers, sailors, laborers, etc. (*b*). When for any reason ordinary food is not well assimilated, or the system has become habituated to alcohol, as in some rare instances of habitual topers, and in some wasting diseases. This substitution should be a matter of necessity, and not of choice.

2. The healthy man with a full and varied supply of

food needs absolutely no alcohol. Wine with food sometimes assists digestion, but the digestion which needs the aid is either enfeebled or overburdened. The most severe and long continued labor can be carried on better without alcohol than with it.

3. In the few cases in which this is not true, and where a small quantity of alcohol suffices merely to restore the normal vigor without excitement, the previous condition is probably one of somewhat impaired vitality, perhaps more especially affecting the heart. As an addition to a diet already sufficient alcohol is, to say the least, useless in perfect health.

4. An occasional use of light wine or beer is a luxury and not a necessity. Experience shows that such a use cannot be regarded as seriously detrimental either to bodily or to mental vigor.

5. After a fatiguing day's work as a relaxation and agreeable change, or as a prelude and assistance to the digestion of more appropriate food, alcohol may be looked upon as approaching more nearly to a true stimulant or restorative than under any other circumstance in health. We then expect from it neither intoxication nor reaction.

6. An habitual overdose of alcohol leads to degeneration of important organs and undermines the vital powers.

7. There may be moral reasons for total abstinence, entirely distinct from the physiology.

8. The introduction of the use of light wine and beer, though not desirable in a community already in a state of ideal physical and moral perfection, is highly desirable as a substitute for the use of strong liquors.

Correspondence.

Ligature of the Common Carotid by Prof. Dawson—A Criticism.

PROF. THACKER:

The following case, remarkable in many respects, is reported by Prof. Dawson in the *Clinic*, Feb. 10, 1877:

"Cavannah here got upon the table, and Dr. Dawson proceeded to tie the vessel, which he did just below the bifurcation. Nothing unusual occured until the sheath

of the vessel was opened, and the aneurism needle was passed under the artery, and pressure made by lifting the handle, when immediately the perspiration broke out upon him and stood in large drops; he became deadly pale, and complained of nausea, and immediately asked for a drink of water. As soon as the vessel was released all the unpleasant symptoms subsided. When the ligature was thrown around the vessel, and partly drawn home, the same symptoms recurred. The distress was such that several attempts were made before the ligature was finally drawn tightly, and then vomiting occurred, which lasted several minutes. The respiration was markedly irregular and jerking, but soon became quiet. After the tieing of the vessel, the commotion and whizzing in the tumor subsided. All was quiet, and the size was apparently diminished; but in a short time the pulsations returned, and the tumor was as large as ever. The pulsations were not as strong as before, but they were quite distinct. Placing the finger in the wound, the impulse of the heart is plainly felt coming from below, and only felt up to the point of ligation; all above that point was quiet, all was passive, showing that the carotid supply on this side was cut off, and that the tumor was fed from some other quarter. Cavannah was put to bed, and all went well until twelve o'clock on Monday night, when secondary hemorrhage supervened. At two o'clock on Tuesday morning, Dr. Dawson tied the vessel lower down, the hemorrhage was checked, the pulsations in the tumor again controlled or modified for a time, but soon returned. He lived until Wednesday at twelve o'clock, when he died from suffocation, produced by intense swelling of the neck, from the sternum to the chin. It is to be regretted that a post-mortem could not have been had."

The first thing to be noted is the fact that the patient become deadly pale, and complained of nausea as soon as the vessel was raised from its sheath by means of the aneurism needle. What caused the phenomena? The cutting off of blood supply to the brain? No; for raising a vessel with an aneurism needle by no means obliterates its calibre. The blood was flowing to the brain in as great a volume as before the operation. What other explanation remains? This; the surgeon had caught in his needle not only the carotid artery, but the *pneumogastric nerve*.

"As soon as the vessel was released, all the unpleasant

symptoms subsided." Why? Because the irritation to the nerve was withdrawn.

"When the ligature was thrown around the vessel and partly drawn home, the same symptoms recurred. The distress was such that several attempts were made before the ligature was finally drawn tightly, and then vomiting occurred, which lasted several minutes. *The respiration was markedly irregular and jerking, but soon became quiet.*"

What better evidence than the above is needed to show that the worthy Professor ligated not only the carotid artery, but with it the pneumogastric nerve. Cerebral symptoms have often before followed the ligation of the common carotid; but here we have a train of symptoms, not to be referred to the brain; coming on before the course of the blood is checked in the artery; increasing in violence as the ligature is drawn tighter, and reaching its acme when the cord has tightened itself about the most important nerve in the body.

"All went well until 12 o'clock on Monday night, when secondary hemorrhage occurred." Here is a hemorrhage coming on four days after the deligation of an artery. This is somewhat remarkable. It is called a *secondary* hemorrhage. Where was the primary? How gracefully reticent the able Professor is as to the source of this hemorrhage. Was it from the common carotid? Surely not; for the ligature was applied lower down in this vessel *two hours* after the hemorrhage began; and it is not to be credited that a man could suffer hemorrhage from the carotid for two hours and survive.

It is evident that Prof. Dawson thought the hemorrhage came from the carotid, for he applied the ligature to this vessel *lower down*, and the hemorrhage ceased, and *the pulsations in the tumor were again controlled.* If the hemorrhage came from the carotid, *the connection of this vessel with the tumor was shown to be severed by the very existence of the hemorrhage.* When the connection of the carotid with the tumor was entirely destroyed, how could the returning pulsation be controlled by a ligature to the *cardiac end of the vessel?*

The patient died ten hours after the second ligature was applied, "from suffocation produced by intense swelling of the neck from the sternum to the chin. This is a wonderful end to a wonderful case. It is probably the first

case recorded in the literature of surgery where ligation of the common carotid artery caused death by "intense swelling from the sternum to the chin." This "intense swelling" developed evidently within a few hours, as no mention was made of it until after the application of the second ligature. The report of the case closes with the regrets of the writer that a post-mortem could not be obtained. This is to be regretted, as a post-mortem would, in all probability, have developed several interesting conditions. For the credit of Prof. Dawson let us be thankfu that it could not be obtained. *$_*$*

Medical College Commencement.

Forty-First Commencement Exercises of the Cincinnati College ot Medicine and Surgery.

A brilliant audience assembled at Pike's Opera House Monday evening, February 26th, to witness the forty-first Commencement Exercises of the Cincinnati College of Medicine and Surgery. The dress circle, parquet, stage boxes and balcony were filled with the friends of the college and its graduating class. The stage was tastefully decorated with flowers, and professors, and ministers, and speakers. Seidensticker's band occupied the orchestra stall, and to its inspiring music the young gentlemen nominated to receive their doctor's degree marched into the hall and took the front row of seats in the parquet.

Rev. Sylvester Weeks invoked the Divine blessing on the faculty, and on the young gentlemen graduates. Prof. D. D. Bramble, Dean of the faculty, then made a report on the labors and prospects of the college, which we print in full:

"The trustees and faculty of the Cincinnati College of Medicine and Surgery, have met on this occasion to complete the severance of the last official link which has bound them to the graduating class of the forty-first course of Lectures in that institution. This pleasant duty consists in awarding to them the prizes earned by their toil, by their diligence, and by their exertions—namely, the conferring upon them the degree of Doctor of Medicine.

"The numerical strength of the class in attendance on the present course, taking into consideration the continued financial depression, compares favorably with former

sessions; and we are happy to say that from present indications our spring session promises to exceed the exceptionally large one of the corresponding term of last year. The individual members of the class have been gentlemanly in their deportment, faithful in attendance, and studious, as has been evinced in their final examination.

"We are glad to be able to speak of the continued prosperity of the college. We have more than preserved our existence. We have been and are marching to the tune of progress. The institution is established on a firm and lasting foundation, so that there need be no fear in the hearts of the thirteen hundred alumni of having the diploma of an extinct college in their possession, to mark the period of their entrance upon the important profession which they had elected to follow.

"The graduates of the present class represent twelve different States of the Union. This fact alone indicates the vitality and prosperity of the college, were there no other evidence accessible.

"A year ago the Dean of an institution self-styled 'the oldest and best medical college in the West,' announced from this stage the surprising statement that our school, together with all others, except the one above alluded to, was in a state of rapid decline, and would soon become extinct. On the contrary, this worthy gentleman said that (the oldest and best school) was on the high tide of prosperity—its classes larger, the number of its graduates greater, its faculty better, its teaching superior to all other institutions of the kind in the Western country.

"We are glad to say to the above that we have not perceived any indication of the decay in ourselves. We are sorry to say that we can not entirely endorse the self-praise of our neighbor. It has been the policy of our school not to have large graduating classes, but to have competent classes. This land contains already too many physicians. There are hundreds of men sent forth every year from medical colleges to scourge the land with their ignorance. The remedy lies in one direction only—make the requirements for graduation so difficult that incompetent men shall be discouraged at the very threshhold of the profession.

"Let us not by loud advertisements and bloviating speeches seek to bring into the profession every dawdling, lazy, good-for-nothing young man in the land, but let us

rather wait for our classes, not seek them; let us be candid with our students, pointing out to them in the beginning of their course the trials and hardships which go hand in hand with every conscientious physician. The good old Methodists, when a young man wishes to enter the ministry, were wont to ask the candidate if he felt that he was called. Would that he could impress on the mind of every man who studies our profession the same need of being, as it were, called to it. He who practices medicine with a knowledge of his own unworthiness, is a Judas in our midst and receives 'blood money.'"

After music by the orchestra, the Rev. F. S. Hoyt, D. D., President of the Board of Trustees, presented the diplomas to the graduating class, with a few appropriate remarks, the young gentlemen having filed upon the stage at the call of the roll, and taking their position in a semicircle behind the seats of the faculty.

The following gentlemen are the fortunate recipients of the doctor's degree:

J. Wallace Allison, Indiana.	Richard F. Lamson, Ohio.
Cassius E. Belcher, N. Y.	Geo. W. Maston, Nebraska.
Andrew L. Chapman, Ohio.	William A. Rothacker, Ohio.
Anson Coppock, Ohio.	John L. Smith, Indiana.
James A. DeVore, Michigan.	John B. Stewart, Missouri.
Em'l M. Donelson, Kansas.	Robert B. Stover, Tennessee.
Andra J. Freymann, Ohio.	Wm. A. Smith, Virginia.
J. J. Goodyear, New York.	J. B. Spiers, Kentucky.
Richard M. Johnson, Penn.	James L. Tracy, Ohio.
Chas. P. Kinney, Kentucky.	Foster E. Wilson, Iowa.
W. McKindree Houseman, O.	J. T. McPherson, Ohio.

This duty over, and after more music, Prof. J. A. Thacker delivered the valedictory address on behalf of the faculty. This was followed by an address to the graduates by Rabbi Wise, abounding with good advice and moral sentiment. Rev. Sylvester Weeks pronounced a benediction, and the large audience was dismissed.

We have not space in the present number of the MEDICAL NEWS to publish the Valedictory which occupied about thirty minutes in its delivery.

We make some extracts from the address of the very learned Rabbi Wise, D. D., LL. D., which was listened to with great interest by the vast audience which densely packed the immense hall of Pike's Opera House.

ADDRESS BY REV. RABBI ISAAC M. WISE, D. D.

Professors and students having performed their task, it may not be amiss to tell our friends now entering upon the second act in the drama of life what we laymen expect of the practical physician besides learning and experience, skill and sagacity, what makes the successful and happy physician in the end.

The physician, in the first place, is expected to consider and appreciate his patient as an intellectual being. Man is no organic machine, no self-sustaining automaton; he is an intellectual being. No physician must forget this one moment, even at the bedside of his patient. The sciences of anatomy, physiology, and pathology, especially to those who dive deeply into the laws thereof, without paying sufficient attention to other laws and phenomena in the physical and moral realms, mislead many a speculative mind to the erroneous hypothesis, that man is merely an organic machine. The fact, however, is, that each man is a person, an individual, with a peculiar character and numerous exceptions from the general rules of organism. We are told by eminent practitioners that the ingenuity and sagacity of the physician are by far not called as much into requisition in arriving at the exact prognosis by the combination of symptoms before him, as in the application and modification of the medical means at his command to the special character, organism and circumstances of each special patient; simply because scarcely two men are exactly alike, and every human being distinguishes itself by peculiar organic characteristics, as well as in voice, shape, gait and physiognomy. If man were an organic mechanism, all of them must be exactly alike in all their functions, as all watches, clocks and engines are. There is a certain amount of freedom or self-will in the formation and functions of every human being, which points directly to the agency of mind, free and self-regulating mind, which the physician must never forget to take into fair and full consideration.

Besides, the reciprocity of mind and body is so well established a fact in the medical science, that no thinking physician can lose sight thereof. Imagination is a terrible agency of disease and death. Fear, anxiety, remorse, disappointment, love, jealousy, hallucination, wrath, and many other violent emotions of the intellectual na-

ture have broken down many a man's health and sent many to an untimely grave. Imagination, confidence in the physician, and self-confidence are, perhaps, most approbate medicines, although they are not accepted in the *materia medica* and pharmacy of the schools. Persuasion and encouragement often prove most efficient stimulants, and the physician's countenance always exercises an influence upon the patient. All that is because man is an intellectual being, and not merely an organic mechanism. * *

The sympathy existing between physician and patient, which is the approach of mind to mind—this may sound mysterious, nevertheless it is a matter of experience—this sympathy is one of the most efficient agencies, in numerous instances, to effect cures. I do not mean to maintain that sympathy without the application of medical means cures, but I mean to say it is of wonderful assistance, because it heightens the paticnt's confidence and sharpens the physician's inventive genius. Besides, none can tell exactly why a meal taken in pleasant company and cheering conversation is digested so much easier than one taken in solitude and moroseness. The medicine, like the meal, must be digested, and sympathy is to the former what cheerfulness is to the latter.

If the physician sees in his patient an organic mechanism only, a mere subject, interesting or uninteresting, on account of the peculiar disease or its process, there can be no sympathy between the parties; for sympathy means the approach of mind to mind by a law inherent in mind only. If I am in the physician's estimation a mere machine, how could I, with confidence, subject myself to his treatment? Perhaps he prolongs my disease to make my bill so much larger. Perhaps he tries experiments on me to ascertain the effect of certain medicines. Perhaps he does not care at all about me, whether I suffer more or less, recover or die. So people who have no confidence in their physicians are apt to think, and they have no confidence on account of the lack of sympathy, and there can be none if the patient appears to the doctor a mere organic machine, a subject.

Besides, it must be borne in mind that the worst outgrowth of modern civilization is the prevailing gross materialism, the indomitable desire, or rather the unbridled passion, to get rich, or, as they say, to make much money,

very much of it. All society suffers of this malaria. It undermines honor and integrity, and brings rectitude and manfulness themselves into bad reputation. The politician and statesman seek public position because there is a million in it. The poet, author or journalist writes with an eye upon the market. The same is the case to an alarming extent with many, many men and women, in all departments of human productiveness and activity. Therefore this corruption in public life, therefore the astonishing piles of worthless journals, books, and works of art. Only where free genius dictates, and untrammeled talent shapes, the grace of the Muses is poured out. Those who toil for money only can never be great, and their works are produced for oblivion. The merchant, banker, or mechanic must be rich to be respected, so corrupt is society; the man of genius bears his wealth and his paradise in his mind, and if he prostrate them for filthy lucre, he is prostrated. He could never be great. * *

It must, furthermore, be borne in mind that the physician is expected to be a scholar, a man well versed in the sciences of his profession, together with the experiences and discoveries made daily almost in the medical practice. This is not so easy now as one might expect, for in our days the natural sciences are so intimately linked and wedded together that a clear understanding of one without the aid of all the others is almost impossible. Only the man who loves his profession, who loves science for science's sake, can become a thorough scholar in any department of learning. Therefore it is expected of the physician to love and honor his profession, to love science for science's sake, and that in consequence thereof he study carefully his cases, compile his experience for general use, and compare it carefully with the experience of other physicians. Such a physician will find very little time left him to roam about town with his boon companions, or to be spent in games and pastimes. He will soon discover that time is precious, life is short, and the work of a physician is enormous. What one has learned in college is to every professional man a mere start. He has learned how to learn, how to go at a science and to handle it successfully; and those only who never cease to learn, to inquire and to search become great men at the end. Application, steady application, is the main mystery of success. One may have good luck undeservedly for a little

while, but the charlatan and ignoramus are soon discovered and superceded.

It is one of the deplorable errors of the American mind that we know and can do almost everything without having learned anything. Because men frequently succeed in commerce or also in politics without any sort of education, and because we are worshipers of Mammon, we declaim lustily about self-made men. This is false, utterly false, with men of science, and especially the medical science, which is the offspring of experience and grows with every passing day. Those who have learned nothing, know nothing; and those who learn not every day, forget something every night, to become less qualified for their vocation with every additional year of practice As long as we lived in the back-woods, the so-called self-made man was a tolerable mountebank; now in the heart of civilized society the scientific man only can expect success. We can not say why the laws of Ohio or any other State should not declare it a penitentiary offense for any one, except those who hold diplomas from chartered medical colleges, to prescribe, give, or sell medicines, unless it be on account of our legislatures being chiefly composed of unosphisticated farmers and self-made lawyers; but we can say so much, that intelligent persons shun quacks, and will place confidence in physicians who are scholars, who love science for science's sake.

"Eight to seven," ladies and gentlemen, is the chronometer of the day. It appears that the American mind, having risen to a certain height, can not go beyond it under ordinary circumstances. This appears to be true in politics, where the mind is incapable or rising above the level of party creeds. It is true in quite a number of classical colleges, working on the same pattern for countless years, and their professors might wear the same wigs and cues, buckled shoes and ornamented swords as did their great grandfathers. Let that become true also among physicians, and the medical science will reach its zero in a very few years. Therefore it is expected of every practical physician to be a scholar who loves science for science's sake, and daily contribute his mite from his experience, observation and research to the progress of the medical science that it runs upon no sand-bank, that it stagnates not in still water; and only such scholarly physicians who are good and philanthropic men can justly expect success.

What else could stimnlate a man to be a conscientious physician, to sacrifice his days and nights, his joys and amusements, his health and often his life at the sick-beds of his fellow-men? It is a most responsible position in life which asks of the apostle of Æsculapius self-denial and self-sacrifice. The physician, the honest and zealous physician, is a high priest of humanity, wearing the breast-plate of science, the Urim and Thumim of philanthropy. Money can not pay for it, the position in society is no compensation for that self-denial and self-sacrifice. Philanthropy, goodness of heart and love for man, the love ot science for science's sake, can be the only motives, making a man a trustworthy physician. Therefore, these are the physicians who possess and deserve confidence, these are the successful men in the medical practice.

Gentlemen of the graduating class, please remember this brief advice of a layman who is truly your friend, a friend of science and all its apostles. Go forth to weeping humanity as messengers of love and science, and God may bless you and your work.

Book Notices.

THE TONIC TREATMENT OF SYPHILIS. By E. L. KEYS, A. M., M. D., Adjunct Professor of Surgery, and Professor of Dermatology in the Bellevue Hospital Medical College, etc. New York: D. Appleton & Co. 1877. pp. 83.

This little book is devoted to the advocacy of a continuous treatment of syphilis by mercury, used as a tonic in keeping with the demonstrations of Wilbouchewitch in 1874, that small doses of mercury increase the number of red cells in the blood. Gives an account of the hematimetre, an instrument by which the number of red corpuscles can be accurately counted, and describes the manner of using it. When to commence treatment, and how long it should be continued. One chapter is devoted to the local treatment of syphilis, and the especial means adapted to special lesions. Many formulæ are given.

This work will prove a most valuable aid to those who treat syphilis. We cordially recommend it. D. D. B.

Editorial.

Two Term Colleges.—Professional warfare has existed to a greater or less extent in every city in the United States, but in none has it been carried to the extreme bitterness that it has been in Louisville, Ky. In that city the quarrelings have been so heated that the parties have condescended to indulge in the most common blackguardism and ruffianism, most disgraceful to gentlemen. Take up almost any number of any one of the medical journals issued in that city, and you will find it brimful of abusive personalities of an opposing clique.

We would care nothing about the disgraceful quarrels of our Louisville friends except to regret very much that professional morality was at so low an ebb among them, if it were not that one of the rings there, in order to inflict an injury upon their adversaries, had not "set up" a plan (for it is not worthy of any more respectful mention) to compel, *nolens volens*, all medical colleges throughout the United States to hold but one session a year under the pains and penalties of *not having their tickets recognized* by the one term schools. One of the cliques there thus think that the school presided over by Prof. E. S. Gaillard will thus be routed out root and branch.

One would scarcely have thought that a scheme so barefacedly a mere plot of a number of maddened men of a certain ring of a city to crush out a competitor would have met with any countenance from teachers of other parts of the United States, but it seems that the faculties of a number of colleges outside of Louisville, which hold but one term a year, have thought it would be a favorable opportunity to compel all other colleges to do likewise. It is so human to tyrannize and play the petty despot that the temptation could not be withstood.

An association has been formed, we understand, named the "American Medical Association," the object of which, as stated in the Constitution, "is the advancement of medical education in the United States." But how is it proposed to advance medical education in the United States? Is it by raising the standard of requirements? Are applicants for admission into medical colleges to be required to exhibit evidence of being Bachelors of Art, or, in lieu of that,

to sustain an examination in literature and the sciences? Is it proposed to abolish the diploma fee as a bribe to pass an incompetent candidate for graduation? Is it proposed that in each city where there are medical colleges that a board of examiners composed of physicians not connected with any college should examine and pass upon candidates for graduation, and not the faculties of the respective schools? No; none of these. The requirements of graduation are made the same as have been in existence in all respectable medical colleges for years: Evidence of good moral character; be 21 years of age; have studied medicine under a regular physician, be he a graduate, licentiate, or merely practitioner, for three years; have attended during the three years, two full courses of lectures in a medical college in which are taught all "the seven branches" of medicine which all good schools give instruction in, and some a number of others, pass a personal examination before the faculty on all the seven branches of medicine mentioned in Article II—namely, anatomy, physiology, chemistry, materia medica and therapeutics, obstetrics, surgery, pathology and practice of medicine. But the "*advancement*," where does that come in at? These are the present old requirements, where's the "*advancement*" of this Association "for the advancement of medical education in the United States?" Well, be patient, be patient, and we will tell you as soon as we can get breath. "Between the beginning of the first course, and the end of the second, more than fifteen months must elapse." There you have it; and for fear the student might be induced to attend three courses of lectures, in order that he might not get rusty in his studies in the interval between the end of one course, and the commencement of the following one, the college is not to be permitted to hold an intermediate collegiate session, under the pains and penalties of withdrawal of recognition. Really, it occurs to us the Association should state its object to be "hindrance of the advancement of medical education in the United States."

But this Association, like all others having their origin in selfishness and a disposition to tyrannize, will come to an untimely end. It is based upon no high motives, it has no exalted scheme in view, it has nothing in it enduring; but by the time it has held a couple of meetings, its members will fall to kicking, striking, and scratch-

ing one another, and then it will fall to pieces. It is the offspring, as we have intimated, of the blackguardism and ruffianism of the medical rings of Louisville; and the vices amidst which it was born will soon eat out its vitals.

Organizations, as medical colleges, have certain inalienable rights, which it is an effort of tyranny to attempt to deprive them. What a man shall eat, or what he shall drink, or what he shall wear is nobody's business. If his clothes are decent, it concerns no one but himself whether they are made out of linsey woolsey or broadcloth. If an individual has not a right to decide in such matters he has no rights at all. So as respects a medical college. If it has not the right to hold its sessions, of a recognized definite length, as frequently in a given time as it wishes, if it has not the right to charge whatever fees it pleases, it has no rights at all. It has no right to graduate incompetent men to the hurt of the community, as an individual must not injure any one in the exercise of his prerogatives as a man and citizen; but the plan of instruction adopted to bring about the result labored for—the undoubtedly competent physician—and the compensation charged for the same, are matters that intrinsically belong to the college. The public good is the great end of education. In medical education that is subserved by sending forth men well versed in the lore of the profession, and it makes no difference how it has been imparted, or what has been paid for it, so that it has been attained.

What is called the community, is the most vitally interested in a physician's qualifications. Think ye that the community cares or can be made to care what fees a doctor paid for his education, or whether he graduated at a "one term school," or a "two term?" We wot not. He is the physician with it who is the best qualified—he it is who will get the business, who will have the respect and high standing that belong to learning. We have no doubt the before-mentioned Association would pass a rule, if it could enforce it, forbidding the community to employ any but graduates of their so-called one term institutions, but alas for them the community would hold their rule in contempt, and would patronize just whomsoever it pleases.

If this Association or some other would make the *advancement* of medical education its real object, and would exhibit it by taking such action that, *per se*, if honestly carried out, would do it, as increasing the requirements

for graduation, as making necessary certain literary and scientific acquirements previous to matriculation, adding on additional branches to the curriculum of studies, then it would obtain sympathy, and the colleges that refused co-operation would place themselves in the position of seeming to stand in the way of progress and the public good. But an Association like this one, that proposes to rank a college, not on the facilities which it offers to students for a thorough medical education, not on its high standard of requirements, but merely on its willingness to hold its sessions during particular times of the year, and to be in session in its collegiate capacity at no other times, has no elements of success in it whatever, nothing to command respect, and must necessarily fall to pieces in a short time. With this precious organization, if a *yclept* medical college, without clinical advantages, its chairs filled by upstart doctors without character or position, no means of illustration, having its habitation, may be, up stairs in some back rooms of a rickety old building devoted to mercantile purposes from which it may be ousted any day for non-payment of rents, assents to hold only one session a year, (no clause has yet been enacted in regard to fees) it is in good standing, while Harvard University, University of Virginia, and other two term of the most thorough and efficient organizations would not be. Out upon such assumptions. We only speak our individual opinion, but we hold that a medical college that would enter an organization of the kind, and make a surrender of its inherent rights, is not worthy of much esteem.

Holding two terms a year is an advance over the old mode of holding but one. It encourages attendance upon three courses of lectures. In fact, as a result of it, attendance on three terms is becoming so common, that the time is not distant when it can be made a requirement. But how is it now, and as is proposed to be perpetuated? Why, from the first of March until the first of October, the student returns home and generally engages in school teaching or some other employment. By the time he returns he has gotten pretty thoroughly rusty in his studies of the previous winter, and half the session is spent in brushing up. He would like, perchance, to attend a third course, for he feels he needs the additional study, but it would delay his entering upon the duties of the profession

another year, and he thinks he cannot spare the time. He has fulfilled the required time of study, and so he offers himself for graduation with many misgivings as to his fitness and apprehensions (silly fellow) as to his getting through, *but he passes.* (We are in a position to prove that students are graduated at a number of the "one term schools," which make the most noise, with less than eighteen mohths' study, and with attendance of only a few weeks on each of the two courses of lectures.) If he could enter upon a third course without delay he would do it.

A little reflection would convince any intelligent unbiased mind that holding but one course of lectures a year is a hindrance to medical education.

DIDN'T WANT TO GO TO HEAVFN.—It was a New Jersey boy, who, having done some wicked thing, and being asked if he did not want to go to heaven, replied: "No; I do not want to get my fingers sore playing on an old harp."

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THE

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Original Contributions.

Valedictory Address to the Graduating Class of the Cincinnati College of Medicine and Surgery.

]Delivered at Pike's Opera House, Fabruary 26, 1877.]

By J. A. THACKER, M. D., Prof. of Principles and Practice of Medicine.

We have met together this evening for the purpose of celebrating the Forty-First Commencement Exercises of the Cincinnati College of Medicine and Surgery. So frequently have the Trustees and Faculty taken part in these exercises that it might be supposed by many that they had long ago ceased to excite in them any active interest; and that when they engaged in them at the close of the different sessions, it would be pretty much in the same spirit in which they took part in any routine collegiate duty.

But such, let me assure yon, is not the fact. Each Commencement is with us pretty much as if it were the first—as if it were the first time we had sent out a class of new doctors to alleviate suffering and cure disease. An unabated interest is awakened, and a feeling of responsibility is excited, none the less in its strength because we have been participants in the same act many times before.

But it can be easily imagined that you, the graduates, would feel a most intense interest in this Commencement, as others like you have in past ones; for on this occasion you enter the medical profession—a profession on which you have staked your obtaining a livelihood, your position in society, and your usefulness. This occasion forms, as it were, a new and most important epoch in your lives; for a man's calling has much to do with his welfare, for weal or for woe. In fact, a man's life is made up of what he

does—of his acts; and of course the character of these are determined more or less by the nature of his calling. If he enter a profession like that of medicine, his usefulness will be in the direction of relieving pain and curing disease; and the injury he may do will consist largely in the damage he may inflict, from ignorance, on the physical constitution of those who employ him, working death in families instead of restoring to health; causing sorrowing instead of creating happiness. If not ignorant, playing upon the credulity of the suffering, exciting hopes that can never be fulfilled, and robbing all whom he can induce to intrust themselves to him. Probably, next in importance to that of being born, is the nature of a man's pursuit as regards himself and as regards others if successful in that pursuit, for in the success of it, whatever it may be, depends his usefulness in life, his social position and standing in the community, his wealth and power. Now, since on this occasion, on this celebration of the Forty-First Commencement Exercises of our College, is signalized your entrance upon the calling in life you have chosen to pursue, it can be easily understood that you take the deepest interest in it.

It is usual in valedictories to medical graduates to expend no little time in extolling the medical professson, proving by arguments that it is a most noble one—that it is second to none other, not even that of the ministry, if the orator happen to be surcharged with enthusiasm. But I presume that all of you, and all who hear me, have fully made up your minds as regards its high character, and nothing that I could say would change your conclusions; so therefore I will not consider myself remiss in my duties if I have but little to say in the way of mere laudations. That all appreciate the calling to no little degree is evident from the fact that when sickness comes, when pain begins to rack the body, the physician is eagerly sought for, and on him is centered the hopes of the patient and his friends for relief. It is his countenance that is closely scrutinized to ascertain, if possible, the fate of the sick one. If it betokens hope there is rejoicing, but if danger there is grief.

The practice of medicine as a vocation or profession is probably co-eval with man. From the time our first parents were driven from the garden of Eden they no doubt became subject to disease, and had occasion to seek the

aid of medicine for relief. Man's needs would make the establishment of a healing art an early necessity; and we have, therefore, reason to believe that it is a most ancient calling. Dr. Kalisch, a learned Jewish rabbi, in a late number of the *British Medical Journal*, (Dec. 30, 1876) states that the medical art was, among the Hebrews, practiced from early times by a special profession termed the Rapheim, and is mentioned in the ancient book of the Covenant, which embodies the oldest fundamental laws. In chapter 21, verses, 18 and 19 of Exodus, we read: "If men strive together, and one smite another with a stone, or with his fist, and he die not, but keepeth his bed; if he rise again, and walk abroad upon his staff, then he that smote him shall be quit: only he shall pay for the loss of his time, and shall cause him to be thoroughly healed." Here, in the book of Exodus of the Bible, we have the recognition of a healing art, of a profession whose function it was to treat diseases and injuries, and whose services, it was the divine injunction, should be secured when needed. Possibly, as Dr. Kalisch says, much of the knowledge of the Hebrews was derived from the Egyptians, who were famous for their discovery of remedies and for their medical skill, as is mentioned by Homer in his Odyssey (Hom. Od., iv, 229–232), and by Herodotus in his Histories (Herod., ii, 84; iii, etc). Embalming physicians are mentioned in Genesis. In the fiftieth chapter of this book, 2d verse, we read: "And the physicians embalmed Israel." During their sojourn in Egypt the Hebrews had midwives, as is shown in Exod. i, 15–20, where it is said that God dealt well with the midwives for disobeying Pharaoh on a certain occasion.

The physicians, many of whom belonged to the prophetic order, enjoyed great respect and confidence, and were very generally employed, it is stated, especially after the time of the exile, when even the smaller towns had their medical practitioners. Jeremiah (viii, 22) says: "Is there no balm in Gilead; is there no physician there? why then is not the health of the daughter of my people recovered?" The priestly book of Chronicles severely blames King Asa, for not having consulted God, but the physicians. In later times the priests and Levites, says Dr. Kalisch, who officiated barefooted at the temple, had a special physician (medicus viscerum) to cure the colds to which they were liable. The Essenes particularly were

celebrated for their knowledge of medicine and the natural sciences, (Joseph., *Bell. Jud.*, 2, viii, 6).

"The remedies used by the ancient Hebrews were chiefly ointments (especially of balsam, Jer. viii, 22; xlvi, ii; ii, 8); leaves of trees (Ezek. xlvii, 12); cataplasms, (especially of figs 2 Kings xx, 7); mineral baths, (Josep. *Antiq.*, xvii, vi, 5; *vita*, 16); river baths (2 Kings v, 10); oil baths, (Joseph., *Bell. Jud.*, 1, xxxiii); animal warmth for restoring the circulation (1 Kings i, 2–4; 2 Kings iv, 34, 35). Music was employed for dispelling melancholy (1 Sam. xvi, 16); fish gall put on the eyes to cure blindness (Tobit vi, 4). Of inward medicines, honey only is mentioned in the Old Testament (Prov. xvi, 24); several others occur in the Mishna and Talmud, where also many chirurgical manipulations are alluded to, even the insertion of artificial teeth (Mishn., Shabb. vi, 5). As a kind of sanitary police, the law (*i. e.*, the Levitical law, which is of very late origin) appointed the priests, not so much to practice, but to exercise the inspection and control over the sick and persons suspected of some endemic malady, especially leprosy, and it gives, in this respect, directions which seem to prove very careful observation (Levit. xii, xiii, xv). The laws of purification had, of course, an important sanitary influence (Levit. xii, etc.) The dietary laws also (Levit. xi, etc.) were partially, though by no means exclusively, suggested by sanitary considerations."

By the ancient Greeks and Romans the profession of medicine was held in high repute. In fact it would seem that a knowledge of medicine was deemed necessary in order to be learned, for it is stated of Virgil, the poet, that while residing at Naples, he entered upon the study of medicine, mathematics, and philosophy. Cato, the Censor, not only studied medicine, but practiced it. The works of the learned Celsus, on medicine, are extant to this day, and contain much knowledge that is applicable to the treatment of disease at the present time.

Christ, as you all know, added to his office of teaching and preaching that of healing diseases, and was esteemed as The Great Physician; and was in fact the greatest physician the world has ever known. People flocked to him from every quarter by the hundreds, bringing their friends, who were diseased, to be healed. By uniting into one the offices of minister and physician his influence and power over the people were largely increased. And I

have no doubt that if to-day the minister of the gospel was also a skillful physician, his ability to do good would be rendered a thousand times greater, and he would be enabled to hold the attentions and make his words listened to by thousands who now turn a deaf ear to him.

You thus perceive that the profession of medicine has not only now a high position, but has always been held from the earliest ages in the highest esteem—even God himself, when incarnate, acting as the Great Physician. In our modern times, with the rapid progress science is making, it is including every day a wider range of knowledge, and taking a higher rank among the learned professions.

An eminent English physician in addressing recently a class of medical students said: "You are brought into direct contact with the facts of Nature, face to face with them from the beginning of your course; step by step you advance in the practice of observation and reflection, from more simple to more complex phenomena, and so you learn to make the order of your ideas conform gradually to the order of Nature." In the study of medicine more than in the study of any other profession an individual becomes a student of Nature. Almost all the natural sciences are collateral to that of medicine, and a more or less knowledge of them is necessary for a thorough and complete knowledge of it. So much in fact is the physician led to dig and delve in the placers of Nature, and to observe her phenomena and laws, that he is often led to insist upon explaining by natural laws many things that were previously regarded as having their cause in the supernatural. As the distinguished gentleman whom I have just quoted says: "Men have found it much easier to attribute phenomena to some metaphysical entity which they have created out of a mental abstraction, or to evoke a supernatural cause to account for them, than to find out the explanations." Occasions for offense, therefore, may arise when you, as students of nature, in your investigations may give forth doctrines which conflct with preconceived notions, especially if these have been founded in superstition, the result of ignorance, unavoidable probably at first, and afterwards continued from indolence to investigate, or positive hostility. It has always been characteristic of man, as you will observe in your study of him, to ascribe to supernatural agencies what-

ever phenomena he could not readily at the time explain by natural causes; and then, having formed a judgment, exhibiting the greatest aversion to its being called in question. New truths, consequently, although they finally prevail, for error cannot always be triumphant, make headway slowly, sometimes requiring a generation before obtaining a general assent. Galileo, you know, was persecuted for teaching that the earth revolved—it being believed that such a doctrine was subversive to religion, but when science so established it that it could not be gainsayed, it was ascertained that only men's interpretation of the divine will suffered, and not the divine will itself. Men seem to forget that religion must necessarily be in harmony with science—if it is not it is not religion. The Divine mind that originated one originated the other; and as it is impossible for God to lie, he cannot make one contradict the other.

At the present time, as you are aware, a fierce conflict is being waged between the votaries so-called of religion and those of science, and as students of nature, and, especially as students of medicine, you will be called upon to take part in it. The first seem to feel required to resist with might and main what the latter promulgate as the results of their investigations. From the pulpit and from the press ministers denounce Darwin, Huxley, Tyndall, Beale, and other physiologists and naturalists, as if by the researches of these men religion was about to be overthrown and the world made infidel by their teaching, as if religion could be overthrown by facts that might be discovered in any department of knowledge. Men are apt to believe that their interpretations of the divine will are correct, and if, therefore, these be assailed they take it that the divine will or divinity himself is assailed. They do not seem to understand that "if a positive law of nature is discovered which appears to be in conflict with the statements of revelation, the law must stand, and we must seek a better understanding of revelation." The truths developed by Darwin, Huxley, and Tyndall, and others, will never injure religion, and as far their deductions, or doctrines, which they endeavor to build up on these truths, if not correct, they will soon fall by the discovery of new truths. You need, therefore, have no apprehensions that, in your investigations, which it is your duty to carry on, that you will widen the domains

of materialism beyond what, as religious men, it is proper for you to do for the safety of religion. You cannot do more at the most than to expose the fallacy of some theological dogmas—overthrow some superstitious notions, and let the glorious truths of divine revelation shine in more brightly upon the mind. As you progress you will establish more and more clearly the evidence of the existence of a divine being, a supreme mind. No scientific researches have, in the least degree, tended to disprove this great fact; no future laborers in the fields of science will ever, by their discoveries, render it doubtful, but they will disclose more of that mind as it lies hid in his work.

Without wishing to stop to discuss the correctness of the prominent theories of those investigators whom I have just mentioned, and which are exciting so much interest, and with it a great deal of bad feeling, excuse me for digressing for a moment to say that I cannot possibly conceive how religion will be injured even if they turn out to be true. As regards Evolution, for instance, which is in every body's mouth, many expressing themselves about it who have very incorrect ideas of its true meaning, I consider that there is a host of difficulties in the way of its acceptance, but even if true, I can not imagine how it militates against the belief that man has a soul, an immortal principle that will live forever. Even theologians now, I believe, do not insist that our earth was created in six diurnal days, as the unlearned reader might suppose from reading the first chapter of Genesis, but, on the contrary, was the work of many ages. How then must the declaration be regarded as in conflict with revelation when it is declared that man was not the product of a single act of creation, but was evolved by the action of forces through long periods of time. It would follow none the less that he was created by the Almighty in this case, than that the earth was created by Him in the other. It occurs to me that we should be extremely careful how we anathematize, for fear we may be compelled at a future time to review and revise some of our anathemas, as we have been compelled to do in times past. Very recently a clergyman has written a work showing that Evolution is not destructive of the religious sentiment; that it favors the most exalted conception of God; that it brings Nature into harmony with elevated

religious feeling, and must be of great service to humanity in sweeping away many superstitions that have grown up in times of ignorance, and become associated and deeply involved with religious emotions.

But, as I have said, there are a host of difficulties in the acceptance of the doctrine. There are so many facts that go to disprove it and render it untenable that I do not believe it ever will be accepted. Men of science are not inapt to base false theories on the facts which they have discovered, and therefore their dicta should be accepted with a due degree of caution. Besides this vanity and selfishness, from which their scientific attainments do not shield them in the least, and an inborn hostility to generally accepted truths, especially those which tend to instil humility in the minds of investigators, and feel how insignificant they are in comparison with Him who created all things, and governs all things, and whose creatures they are, not unfrequently begets a desire to overthrow those solid structures of truth which have stood the contest of ages, and substitute in their place the creations of their own fancy.

In the discharge of your duties as physicians you will have to do with men's minds as well as their bodies—you will be called upon to treat mental ailments as well as physical diseases. The researches of physiologists of late years have thrown a great deal of light upon mental phenomena. Formerly they were considered as belonging exclusively to the domain of metaphysics, and the metaphysician alone was regarded as competent to deal with them. But not so now, with our increased knowledge of the nervous system. Intellectual processes and emotional movements are recognized as having their scource in the brain, developed as it is developed, and modified as it is modified.

I do not wish to be understood to teach that mind is secreted by the brain as bile is secreted by the liver, as has been suggested by some physiologists, but that such functions as sensation, perception, ideation, memory, imagination, judging, etc., as well as the emotive powers which reside in the feelings are, as it were, certain forces which depend for their character upon the character or type of the organization of the individual, which is capable of being, and is apt to be, transmitted from parent to child. This may be regarded as materialism; so also it

was materialism that denied that epilepsy and insanity was not the possession of an individual by an evil spirit, but were produced by disease, and consequently that the poor sufferer should not be loaded with chains and confined in a loathsome cell, away from sympathizing friends, to be lashed and otherwise mistreated by a brutal keeper, as was formerly the case, when such superstitious notions prevailed, but should be kept at home, or placed in a hospital, be kindly treated, and be under the care of a physician.

The spiritual essence or principle in man I would consider as consisting in that feeling, sense, or consciousness which always attends him, and which is always witnessing to his self-identity. This is the *ego* which attends one throughout life, and is really the only principle that journeys with us from the cradle to the grave; and it has occurred to me that it is the principle that exists after life has ceased to vivify the body. Our bodies change from year to year, and so do also our minds. There is probably not a single material element in us that entered our structures twenty years ago; while our intellects have become so developed, and our feelings, moral and emotional, have become so changed by experiences that our minds are no longer the same, yet this *ego* continues with us, testifying that notwithstanding our physical and mental metamorphosis into new beings we are the same individuals. It also gives us our feeling of continuous responsibility—that notwithstanding the change in us, it is right for us to be held accountable for past conduct,—that the obligations we contracted in years gone by should be met and fulfilled. A principle thus always abiding in us, and never changing, however we may change in circumstances or condition, in body, mind, or feeling, witnessing continually to our identity, and connecting us with the past and our acts in it, it seems to me not improbable to be a principle that may live on after the body has ceased to exist.

The transmission by inheritance of physical and mental diseases, and traits of character of body and mind, which has frequently been brought before your attention during your course of instruction, are far better understood and more generally recognized now than formerly. The inspired writers of the Bible seem to have recognized it in their declarations that the sins of the fathers should

be visited upon the children to the third and fourth generation; but only after long periods of time have we come to know, through our knowledge of science, acquired little by little, that diseases begotten by vicious indulgencies and other causes, and taints of the constitution of all kinds, are inherited by the children from the parents. A mystic interdependence has thus been established in the relationship of consanguinity which is most interesting to the student of medicine, and it is to be hoped that in the pursuit of your profession you will observe all facts bearing upon the question that you may still further elucidate it. The deductions so far certainly warrant us in assuming the material origin of those faculties which heretofore have been regarded as immaterial, the fact being overlooked that even the lower animals possessed them in a degree.

There is no doubt that as physicians you may be of the very greatest service to the human race in the way of elevating it mentally, morally, and physically, not by the mere teaching of morality and religion, but by profoundly studying the laws of heredity, and teaching them and impressing them upon the minds of the public. A distinguished British physiologist and writer, and recognized authority in matters of pschology, says: "I see no reason to doubt that by discovery of these laws and intelligent practical use of our discoveries, we might in the fullness of time produce, if not a higher species of beings than we are, a race of beings, at any rate, as superior to us as we are superior to our primeval ancestors."

The profession of the physician, gentlemen, is not an unproductive one by any means. There are no men engaged in any calling more capable of doing good. The husbandman plows and furrows the ground, sows the seed, and when it has sprung up and ripened, harvests it and furnishes us all with food. There can be no doubt of the usefulness of his calling. But a higher intelligence and a more extensive knowledge is necessary to instruct men how to live, to enjoy life in a healthy body. The poison of disease lies concealed all around us, and is ready to seize on the blood and start up its morbid processes leading to death. Even our very instincts, placed in us for our welfare, threaten our existence almost before we have started on our journey of life. Add to this, that in contracting disease, we beget it oftentimes not alone

to be sufferers of it, but to transmit it to posterity. How pre-eminently useful, then, is that calling which teaches how the poison of disease may be exterminated from its hiding places, which stays the plague in its devastating progress, and which protects the unborn from the miseries which otherwise ignorant parents would entail upon them; and, if disease has invaded the system, conducts it to a safe issue by appropriate remedies, or, if that is impossible, relieves the suffering, and lets him appointed to death die in peace.

Dr. Aitken very justly remarks, that the political economist cannot now regard medicine in any other light than as a productive art; and the labors of the physician can not be regarded as unproductive labor. In England, for instance, and the same thing has been proven to be the fact as regards other countries, he says that human life, as compared with previous rates in the same district, has been prolonged from 5 to 50 per cent. Agues and typhoid fever are reduced in the frequency of their occurrence. Since 1840 an annual mortality in English towns of 44 in 1000 has been reduced to 27; an annual mortality of 30 has been reduced to 20, and even as low as 15. Not less remarkable reductions have taken place in the mortality and loss of strength in the army and navy; so that generally it may be said that human life has now more value than ever before, although it is a well known fact that with the advance of civilization diseases become more numerous and more complicated in their character. * *

An Inquiry into the Causes of Septicæmia.

By J. W. Underhill, M. D., Lecturer on Medical Jurisprudence in the Cincinnati College of Medicine and Surgery.

After the publication of my paper on Puerperal Septicæmia in the November and December numbers of the Cincinnati Medical News, for 1876, it occurred to me to add certain thoughts which did not present themselves at the time the main article was written, and also to elaborate a few others more fully than was considered necessary at that time. It is only fair to state that these considerations have been suggested in part by the discussion in the Cincinnati Academy of Medicine of the subject of

septicæmia in general—a discussion which followed my paper and occupied the attention of the members for several consecutive meetings. I differ from some of my colleagues probably more upon the question of septicæmia being a disease distinct from pyæmia, and in my view of the causes of septicæmia, than upon all others matters pertaining to the whole subject.

In the article to which reference has been made the course, symptoms, and *post mortem* appearances of septicæmia have been so clearly defined and so sharply contrasted with those of pyæmia, that it is believed almost every one who *carefully* and *candidly* studies the differential diagnosis there given will readily allow the distinction between the two affections. I there alluded to the fact that only a few of our most eminent medical authorities claim that this distinction can not be made out, and as I have in the original paper called attention to about all the principal points in that connection, it seems therefore unnecessary to go over the ground again. Especially does this appear to be the case when we reflect a moment upon the present rapid advance of our knowledge in the pathology of septic diseases, and the study of their clinical phenomena, which promise ere long to settle this point beyond all controversy.

But more particularly do I desire to review the parasitic theory which has been put forward as explanatory of the causes of septicæmia in general. Reference was previously made to this theory, but it was not then examined so fully as some may think its merits demanded.

It has been claimed by high authorities that certain parasites known as "bacteria are the *direct* cause of septicæmia and pyæmia." This proposition, unqualified as it is, I deny. I concede and believe that bacteria stand in the relation of a *cause* of septicæmia, but are not the direct cause, as claimed by the authorities to whom allusion has been made.

Let us inquire more carefully into the claims of the parasitic theory, and if possible ascertain whether it is indeed sufficient to justify the assertion that bacteria are the *immediate* cause of septicæmia.

These elements (bacteria) differ greatly in *size*, sometimes being no larger than a pale globule, and again as large as a pus-globule (*Billroth*). According to Huxley they measure from $\frac{1}{30000}$ to $\frac{1}{10000}$ of an inch in thickness,

though some of them are much longer than the greatest of these measurements. From the same authority we learn that "they multiply by transverse division," and that "many of them have two conditions, an active, and still state." At least two *forms* have been distinguished —the rod shaped and the globular—but doubtless there are included in the general term "bacteria" organisms of entirely different species. From the experiments of Waldeyer, Klebs, and Recklinghausen, it seems probable that diphtheritic inflammations are caused by the globular variety. Hueter states, too, that diphtheritic affections are induced by the presence of the spherical kind of these parasites, but that septicæmia is caused by infection with putrid poison. From careful microscopic research, almost enough seems to have been learned to justify a definite classification of these bodies according to their forms, and it is believed that at no distant day such classification will be made. Indeed, Professor Cohn, of Breslau, has already attempted to classify them by dividing them into four genera with various species. Others have arranged them differently, but hardly enough is yet known of their nature to constitute a safe basis for classification. A longer time will be probably required to isolate all the putrid poisons, that they too may be arranged under a proper nomenclature. When the arcana pertaining to the chemical poisons of putrefaction are thoroughly explored, and the influence of parasitic organisms in its production are completely understood, then, and not until then, will we understand the subject of septic poisoning in its full completeness.

It is admitted by all who have given any attention to the subject that bacteria are the agents of putrefaction. And yet it is not improbable that there are some species of these monads which have no causative agency whatever in putrefactive processes. Nor is the question of their animal or vegetable life so definitely settled as some have claimed. Upon this point Pasteur says (as quoted by Billroth): "Putrefaction and fermentation are accomplished only by *vegetable* organisms, though there may be *other* forms of decomposition occurring without fermentation." Lionel S. Beale, Cohn, Oertel, and indeed most observers, agree as to the vegetable nature of the bodies in question. They may be very readily developed in both animal and vegetable infusions. Dr. Hassell has claimed,

in an article published many years ago, that these organisms are animal, and that their movements are voluntary—a view which it may be scarcely necessary to add has, at the present day, but few supporters.

In the study of life invisible to the unaided eye, it has often happened that organisms, which at first seemed to be almost without doubt of animal existence, have afterward been proven to be vegetable, although possessing motive powers something like those of animal life. The locomotive power of vegetable organisms is not believed to be voluntary, constituting, if such be the case, a distinction of primary importance between the motile and animal organisms.

Fermentation is a process which in many respects resembles decomposition, but it is far less complicated than the latter. That form of decomposition which is recognized under the term putrefaction—a designation so frequently employed in the literature of septicæmia—is, as has before been intimated, accomplished mostly by the agency of the microscopic organisms under consideration.

Whence come the bacteria, these "agents of all putrefaction?" By simple, yet beautiful illustrative experiments of Tyndall, it has been shown conclusively that they come from the floating dust of the atmosphere. That distinguished scientist adverts to the familiar fact that if a sunbeam be admitted through an aperture in the closed shutter of a dark room its track will be rendered luminous by the dust of the air contained in the chamber. If the air be not agitated, the track of solar light will gradually grow fainter and less visible, until at last it can not be distinguished—the motes which at first made the beam so distinct having finally settled to the floor, or become attached to the walls, ceiling, or objects within the room. Following the clue given by this elementary experiment, he next experiments with animal and vegetable infusions, showing indubitably that the agents of putrefaction are developed in the infusions exposed to dust-laden air, and that no such agents are found in similar infusions placed in moteless atmosphere. His practical tests are so free from fallacy, his reasoning so logical, and his deductions so conclusive, that I may be pardoned for quoting him at considerable length. He says;

"Chop up a beefsteak and allow it to remain for two or three hours just covered with warm water; you thus ex-

tract the juice of the beef in a concentrated form. By properly boiling the liquid and filtering it, you can obtain from it a perfectly transparent beef-tea. Expose a number of vessels containing this tea to the moteless air of your chamber, and expose a number of similar vessels containing precisely the same liquid to the dust-laden air. In three days every one of the latter stinks, and, examined with the microscope, every one of them is found swarming with the bacteria of putrefaction. After three months, or three years, the beef tea within the moteless chamber is found in every case as sweet and clear, and as free from bacteria, as it was at the moment when first put in. There is absolutely no difference between the air within and that without, save that the one is dustless and the other dust laden. Clinch the experiment thus: Open the door of your chamber, and allow the dust to enter it. In three days afterward you have every vessel within the chamber swarming with bacteria, and in a state of active putrefaction. Multiply your proofs by building fifty chambers instead of one, and by employing every imaginable infusion of wild animals and tame; of flesh, fish, fowl and viscera; of vegetables of the most various kinds. If, in all these cases, you find the dust infallibly producing its crop of bacteria, while neither the dustless air nor the nutritive infusion, nor both together, are ever able to produce this crop, your conclusion is simply irresistible that the dust of the air contains the germs of the crop which has appeared in your infusions. I repeat, there is no inference of experimental science more certain than this one." *

Farther back than these germs of putrefaction, of which our air is full, science has not yet certainly penetrated, but it is believed that the active inquiry which is at present turned in this direction will, at no very distant day, unlock the mysteries of their most intimate nature.

At times the air is in a particular locality rendered foul by the development of an unusual number of these elementary organisms of the lowest vegetable species, microscopic fungi, and algæ. To so great a degree does this impurity at times exist, that it may be taken cognizance of by the ordinary senses.

Certain diseases are propagated by *special* germs, which,

* From a lecture before the "Glasgow Science Lectures Association," October, 1876.

if existing in sufficient amount or intensity, are often the essential cause of such affections becoming epidemic. These germs are mingled in the atmosphere with the infant organisms under consideration, and the latter heighten the influence of the contagium or epidemic-bearing germs, and may even render a disease contagious which would not be so under the best sanitary conditions.

From the elaborate researches of Pasteur, it does not appear probable that any one variety of microscopic organism is ever transmuted into another. "Like begets like." The Bacterium, the Vibrio, the Torula, the Bacillus anthracis each retains its own distinct nature or existence. And so of all similar organisms with which like experiments have been made. To any one who will carefully study the observations recorded by the high authority to whom reference has just been made, it will appear more than probable that during the process of putrefaction successive sets of organisms are engaged. During the various stages of putrefaction different classes of these parasites take possession, according to the degree of decomposition. Now one, and now another, is triumphant, until the final completion of the putrefactive process. Myriads of each variety are developed with inconceivable rapidity. A certain class may be destroyed by one to which it was inimical, and the latter become its successor, to be succeeded in turn by the next conqueror. Yet it is not probable that during the process of putrefaction the destruction of the various crops of these organisms always occurs in the way just described. Doubtless they often die in consequence of decomposition having reached a stage that furnishes a pabulum incompatible with their existence.

Not only do we find different sets of parasites working at different periods of decomposition, but we find also, as shown in my paper on Puerperal Septicæmia, *different putrid poisons generated according to the degree of decomposition.* May it not be that the multiple poisons of septicæmia and its allied affections are each produced during a distinct phase of putrefaction, caused by its particular species of bacterian organism? In other words, may it not be true that each kind of parasite produces only its own special stage of putrefaction; that during that stage only one, or a certain definite number and kind of poisons, may be generated thereby, giving rise then to

certain special symptoms, and to these only? Strength is lent to the view indicated by Hirschfield and a few others, who, from their observations, are convinced that *one* variety of bacteria is concerned in the development of the putrid poison of septicæmia, and *another* in that of pyæmic poisoning. If this be true, it forms another strong argument in favor of the non-identity of pyæmia and septicæmia.

Of course it is not denied that bacteria are found in the blood during the progress of other affections besides septicæmia, pyæmia, and diphtheritic inflammations. Their relation to disease in general is not understood so well even as their relation to the production of the poisons giving rise to the malady which forms the subject of the preceding article. When bacteria are found in the circulation of a patient, they simply denote that there is putrid matter in the blood of that patient. Again, it has been shown, by the repeated experiments of Bergmann and others, that they may be injected into the sanguineous circulation without giving origin to any symptoms whatever of septicæmia, *provided* sufficient care be taken that no putrid poisons be injected with them. Possibly the reason that some have upon trial failed to obtain like results, may be due to lack of proper care in separating the bacterian infusoria from the toxic matters forming their nidus. Barker, Peaslee, and others of clinical experience in this direction, state that "bacteria are not a causative agency of septicæmia." I can not believe, however, that they mean to deny to these organisms any share whatever in the production of the disease, for they do in a certain sense undoubtedly stand in a causative relation; but this relation is not near enough to the malady to be properly considered as direct and immediate. Probably it was only intended to call in question the importance of these bodies as a factor in the causation of septicæmia—an importance which has been highly magnified by the advocates of the exclusively parasitic theory. Yet we are here reminded that the first named of the authors just quoted goes farther, and expresses his belief that bacteria are "a product of changes effected in the blood by septic poisoning, rather than a cause of the morbid phenomena which appear in septicæmia." There seem to be very few who have the temerity to follow the eminent clinician to whom reference has been made in his ultra views upon this point.

Although it is perhaps scarcely necessary to multiply testimony on this point, yet the eminence of Pasteur as an authority on this subject must be my apology for again quoting his statements. He says that the putrid poisons are "produced by the action of anæroboid vibriones, during the decomposition of albuminous fluids after their oxygen has been consumed by the æroboid vibriones." Carl Mayrhofer sums up his observations in regard to parasitic organisms in the expression, "they play only a subordinate part in the production of disease." Others, eminent in this field of research have confirmed the views above advanced, and it is difficult to understand how any one who will carefully examine the subject can conclude that bacteria are the immediate cause of septicæmia. As the essential agents of all putrefaction they constitute one of the causes. So, too, does the instrument or means by which a wound is effected constitute one of the causes of blood-poisoning that may result from the wound. Between the production of the injury and the putrid poisons lie the bacteria of putrefaction, they being the second link in the chain of causes, and the one next to the toxic elements, which latter form in reality the immediate cause of the disease. The bacteria maturated during the decomposing of devitalized tissue are indeed the principal agents of putrefaction, but the multiple putrid poisons, which are developed during the progress of the putrefactive process, entering the circulation, constitute the *direct* and *immediate* cause of septicæmia, and probably several other closely allied affections. Keep out of a wound the dust of the air which contains the germs of bacteria, and it will heal without suppuration. Hence the success of those surgeons who make it a matter of prime importance to exclude the atmosphere from wounds. In this connection the "antiseptic" and "protective" method of Lister has deservedly attained a world-wide celebrity. The "antiseptic gauze" of that distinguished surgeon is, however, probably no more effective than cotton-wool, as used by a few surgeons, through which bacterian germs can not penetrate—this substance readily filtering them off from the air. The protective and antiseptic methods are the only means that can be made practically available against these organisms and their germs. From Huxley, Tyndall, and others, we know that heat kills them, and we can for ourselves readily as-

certain the degree of heat which is incompatible with their life. Under some conditions it requires a higher temperature to destroy them than under others more favorable. When obtained from a vegetable substance, for example, which has but recently undergone partial decomposition, a few minutes boiling will kill them; but if the substance from which they have been developed is one in which they have been living for years, it will probably require several hours exposure to a very high temperature to destroy their vitality. Herein some who have investigated this subject have erred, and have been led to the erroneous conclusion that it was impossible to destroy by heat certain microscopic forms of parasitic life. If meat be cooked, either partially or completely, the bacterian germs are destroyed, and it remains for a considerable time thereafter free from taint. And herein lies another argument against the theory of their being the direct cause of septic poisoning; for putrid poisons, after having been subjected to intense heat, are still capable of producing their usual toxic effects. On the other hand, it is known that cold paralyzes them; and thisf act accounts, perhaps, in part for the beneficial effects of the application of ice in certain traumatic injuries. By means of this agent game and other meats may be preserved from putrefactive taint for an indefinite length of time. But of course cold can not be used in the human subject so continuously as required, nor to a degree sufficient, to prevent absolutely *all* putrefaction. And it is equally obvious that heat of sufficient intensity to destroy the infant bacteria can not be employed in wounds of the human organism.

Oxygen, which is so essential to all animal life, is also necessary to their existence. Remove them from the air, or rather this element of the air, and they instantly perish. This has been well illustrated by the experiment of placing upon glass a drop of an infusion containing bacteria, and covering it with a thin disc of glass so as to exclude the air from the liquid except that which is at the edge of the thin disc. It will then be seen that they manifest the greatest activity of motion where the liquid is in contact with the air, and collect there in the greatest numbers. But the life-giving oxygen can not penetrate through the living fringe to the center of the drop, and excluded from the air, as is that portion of the film, the bacteria located there speedily perish. May not the knowledge gained

from this little experiment be fairly applied in partial explanation, at least, of the fact that pyæmic abscesses exist much more frequently in the lungs than elsewhere? As the capillaries of the pulmonary organs are of greater diameter than those of other organs in the body, it would therefore be expected, *cæteris paribus*, that they would be less likely to become clogged. Not so, however, for in pyæmia probably 70 per cent. of all existing abscesses occur in these organs. The theory is here ventured that of the myriads of these microscopic organisms which exist in the blood of pyæmia, much the largest portion remain in the lungs, attracted there by the air to which they are exposed during their passage through the cappillaries, which form rich plexi in the walls of the air-cells. Little groups attach themselves to the capillary wall, which is here of such excessive tenuity as to permit the action of the air upon the contained blood. With avidity these little groups imbibe oxygen in this situation, clustering aggregations are rapidly made to these groups, and soon the channel becomes blocked up, obstructing at last completely the circulation. The capillary is thus converted into a blind appendage of the artery, and increased lateral pressure in the former must necessarily result from the *vis a tergo* on the blood in the latter. Indeed, after the stoppage of the capillary tube, the internal and lateral pressure is sufficient frequently to rupture its thin and delicate walls, which are rendered still more tenuous by their extreme distension. Hemorrhage from the ruptured capillary ensues, there is no exudation, and both are limited to the locality of the microscopic lesion. But the same phenomena which have been here so minutely explained occur at, or about, the same time in large numbers of adjacent capillaries, and thus all the conditions for an abscess are shortly obtained.

But it is not believed that bacterian organisms act as a poison in the blood—their injurious effects being obtained principally, if not exclusively, when they exist in numbers sufficient to effect a mechanical obstruction to the circulation. Doubtless they are often taken into the stomach with food or drink, and no pernicious results follow. It is believed by highest authority upon this subject that "bacteria exist in abundance in all ordinary water and on the surface of vessels not chemically clean." And yet it seems that not only water, but other liquids containing

them, may be drunk, and infected household utensils be used, with perfect impunity. So, too, a multitude of their germs are at every respiration inhaled with the dust-laden air. It therefore appears that not only may they exist in the blood without poisoning that fluid, but that they are also —at least under ordinary conditions, absolutely innocuous when taken into the digestive canal or respiratory apparatus. They possess, however, a function both valuable and useful as the "burners and consumers of dead matter," and are positively harmful only when they exist in large numbers out of there proper habitat. No sentence more fitting, elegant, or truthful can be found with which to close this paper than that of an eminent writer who avers that "putrefaction is a concomitant not of death, but of life."

Selections.

Notes on the Treatment of Diphtheria.

By Henry Gibbons, M. D.

(Read before the San Francisco Medical Society.)

A new-born doctor of medicine, embarking in the practice of his profession, after careful study of diphtheria in the text books and medical journals, is prepared to grapple with it boldly and confidently. He holds in his hands a variety of therapeutic agents capable of defying and mastering the foe. With the credulity which belongs to our nature before experience has infused caution and doubt in the mind, he accepts the testimony of practitioners, many of them distinguished in their calling, who have succeeded in curing their patients almost invariably, by this, that, or the other method.

But when he comes to the bedside, face to face with his enemy, the scene changes. The weapons on which his faith and courage rested, fail of the expected purpose. His patients die when they ought to get well. Disappointment and discouragement gradually oveshadow his spirits. He loses confidence in the vaunted cures, no matter how high their authority. In the graver forms of the disease, he confesses the impotence of his science and his art. Even in the milder beginning, the learns to dread the

unseen and insidious. There is danger of his running to the opposite extreme and looking upon the disease as not amenable to treatment of any kind, but better left in the hands of nature.

A list of the agents which have been extolled at different times by men of standing in the profession, as capable of subduing the disease almost or altogether without fail, would embrace nearly all the leading articles in the materia medica. How intelligent and experienced men can claim for certain agents an almost infallible control over this disease, as we constantly observe that they do, is perfectly inconceivable. "Infallible" remedies belong to quackery.

It is not my design to enter fully on the treatment of diphtheria, but simply to point out a few remedies which have commended themselves to favor in my practice, beyond any others. My experience of this disease extends back beyond the period of its recognition as diphtheria. I well recollect instances of its fatal visitations half a century ago, when whole families of children were swept out of existence as at present. "Putrid sore throat," was its common appellation in those days—cynanche maligna. There was nothing peculiar in the treatment: five or six grains of calomel at first, an occasional emetic, and the regular round of diaphoretics and expectorants, with gargles and external applications, and sometimes a blister to the throat. No distinction was observed between ulceration and the diphtheritic exudation, and caustic was applied indiscriminately.

Many years elapsed, after the detection and announcement of the true character of the disease by Bretonneau, before the profession in America recognized the discovery. Owing to the comparative paucity of medical journals and publications, and the conservative disposition of the medical mind, it required ten years at that period to do the work of one year in modern times, in diffusing the knowledge of improvements and discoveries. Practitioners have now gone to the opposite extreme—they find diphtheria abundantly where it does not exist. The want of discrimination in the diagnosis is not at all creditable to the profession. While some are observant and deliberate, the greater number hasten to give the name to every doubtful case, and particularly if anything resembling ulceration can be detected. I have known a

coating of mucus on the fauces, which could be removed by the slightest detergent process, to be pronounced diphtheria, and that by a gentlman of much professional ability. But such is human nature. Some men's geese are all swans, while other men's swans are geese. A physician of vivid fancy, sanguine and impulsive, will always report double or quadruple the number of cases of any epidemic, in comparison with one of cool and deliberate judgment. This error of observation lies at the root of the discrepancy and confusion which prevail in regard to the treatment of diseases. It vitiates our therapeutic records. It exposes medical practice to the imputation of fallacy and uncertainty. It destroys the confidence of the public in medicine, and it shakes the confidence of physicians in their own art.

Most prominent among the reputed remedies for diphtheria are iron, quinia, chlorate of potassa, carbolic acid, and the sulphites of potassa and soda. The two first named stand prominent. Of the preparations of iron, the tincture of the chloride is employed almost exclusively. I believe it to be by far the most valuable agent in the materia medica for the treatment of diphtheria. But it is not given generally in sufficient quantity to yield the best results. Doses of five or ten drops every two hours, which is perhaps about the average prescription, can not be relied on. But I am prepared to say, with much confidence, that in much larger doses, it is capable of exerting a specific action on the disease. For this purpose, *from half an ounce to an ounce should be administered in twenty-four hours*—the smaller quantity mentioned for a child of two years, and the quantity increased for older children. The system ought to be *saturated*, so to speak, with the iron.

A convenient mode of administration for children is in simple syrup, half an ounce of the tincture to two and a half ounces of syrup: a teaspoonful to be given every hour. It is best to give it frequently in order to secure the topical action. For patients old enough to exercise some judgment, water is a better vehicle, as syrup or glycerin tends to shield the diseased surface from the contact of the medicament.

No serious mischief is likely to result from these large doses. Sometimes the stomach gives way after twenty-four hours and the medicine is rejected. Here the citrate

or potassio-tartrate might be substituted. But frequently, twenty-four hours of the treatment will suffice. In other cases constipation and pain in the bowels result. An enema will commonly correct this. As far however as my experience goes very rarely do any bad effects follow large doses. On the contrary, I have been surprised to observe the general indifference with which the stomach, even of infants, accepts the repeated introduction of twenty minim doses of tincture of iron.

The practitioner must exercise his own discretion in every case in regard to the limitation of the iron treatment. My belief is that in from twenty-four to forty-eight hours the system becomes saturated with it—if I may use the expression—and that smaller doses are then requisite, or that it may be suspended, and chlorate of potash and muriatic acid substituted. If it were not for the excessive dosing, which should be avoided as far as possible, I should be inclined to combine the iron with the chlorate from the first, or alternate the two agents. There are few diseases, in my opinion, in which a change of treatment from time to time is more advantageous than in diphtheria.

Sulphate of quinia is almost universally recommended in this disease. It is given empirically and by routine. In former years I was in the practice of using it freely, but never with assured benefit. Of late, I have employed it in a full dose only in the early stages, giving within twelve hours the same quantity as would be required to arrest a paroxysm of intermittent, and subsequently, if at all, not more than two or three grains in twenty-four hours. Children will tolerate a few large doses of quinine better than adults, but they are more apt to suffer from its prolonged use. It is my conviction that much injury is done to children by the continued administration of this article. It appears to have a cumulative effect, and after its sedative and depressing operation is once established, very small doses are sufficient to perpetuate the depression. The idea of *tonic*, which is associated with quinia, is, under these circumstances, fallacious and mischievous. If tonics are required, cinchona in some other form is preferable.

Since the modern revival of the humoral pathology, the idea of "blood poisoning" has taken hold of the pro- essional mind and led to the indiscriminate use of alco

holic stimulants in this and other reputed "blood diseases." No sooner is diphtheria recognized or presumed to exist, than alcohol in some form is poured into the stomach to overcome the phantom of debility, or to prevent the downward tendency which is taken for granted, without any regard to the real condition of the patient's strength. If this routine administration of alcoholics in diphtheria, typhoid fever, pneumonitis and some other diseases, is not sheer empiricism, I know not the meaning of the word. Even if blood poisoning exists, what evidence have we that it is counteracted by mixing alcohol with the vital fluid? The practice is homeopathy in its most offensive form. In point of fact diphtheria takes the same range as most other forms of disease, from sthenic on one hand to asthenic on the other. Rational medicine requires that we prescribe for the patient and not for the disease; and in the exercise of a sound judgment we shall find that there may be a time to give alcoholic and other stimulants and a time to withhold them.

Calomel, so generally employed in former times, is now almost entirely discarded. Nevertheless, in many cases, great benefit may be derived from a single dose at the onset of the attack. The older doctors were in the habit of giving a dose of calomel, almost invariably, in the onset of all acute febrile affections of children, combining it often with ipecacuanha, in the proportion of four to six grains of the former to one or two of the latter. The practice was a good one, and I have no doubt it was the means of cutting short or at least modifying in a great degree the course of disease. I am not ashamed to confess that it is my common practice at this time to give a dose of calomel, with or without ipecacuanha, at the commencement of every febrile attack in children, more particularly during the prevalence of an epidemic of diphtheria, scarlatina, measles, and the like. It is easily taken, it can not be ejected, it is almost certain to purge, and its effect on the liver and other organs is salutary. After its action the system is in a condition most favorable to the influence of other remedies, whatever they may be. And as to the danger of unpleasant constitutional effects from a single dose in the manner recommended, I do not recollect ever to have known salivation result from it. I make these statements with much confidence, and in view of many years of experience.

A great variety of topical applications are in common use as gargles. In some form or other they are indispensable. But external applications are of little avail. I have known, very recently, leeches employed, followed by a blister. The prescriber was not an American, either. —*Pa. Med. and Sur. Jour.*

Excision of the Head of the Humerus.

Dr. W. A. Johnson reports in the *Phila. Med. Times*, Dec. 9, 1876, a clinical lecture on this subject in Jefferson College, by Prof. Gross, as follows;

"The patient now before you is a medical gentleman, 26 years of age, who, three years ago, was thrown from his buggy on his right shoulder, receiving a severe contusion, followed by the usual symptoms of inflammation. You observe a cicatrix situated about the middle of the arm, at which, as we are informed, there was a continuous discharge for a year and a half, beginning soon after the accident. After the parts healed the joint was anchylosed. About six months ago the same shoulder received a similar injury. You now notice two fistulous openings upon the anterior surface of the injured shoulder, from which there is a constant discharge of a fetid character. On introducing the probe I find that one of these fistulous tracts lead directly into the articulation, while the other inclines upward towards the coracoid process. By firmly grasping the scapula, and at the same time moving the arm, you observe the joint has lost its functions. The deltoid muscle is wasted from the joint effect of disease and the want of exercise.

"The patient's general health is good. He tells us he never had disease of any kind, and knows of no hereditary taint.

"Anchylosis is generally produced by inflammation of the synovial membrane, with plastic deposits upon its surface. It may arise from all kinds of injuries. In this patient there was a contusion giving rise to synovitis, and an effusion of plastic matter. This matter became organized, bands of adhesion formed, and the joint became fixed and immovable. The inflammation extended to the periosteum, and necrosis and absorption of the articular cartilages took place. The glenoid cavity was effaced,

and the tissues within and around the joint became roughened and bound down by organized plasma.

"When the anchylosis is of recent standing, when the adhesions are weak and of limited extent, and when the joint is not too complicated in its structure, a reasonable hope of breaking up the morbid adhesions and re-establishing the functions of the joint may be entertained; but under opposite circumstances it is useless to resort to any thing short of excision as likely to be of any permanent benefit. Necrosis and caries of the head of the humerus and contiguous surface of the scapula are the most common reasons for resection, and render the operation necessary in this case. The mortality from excision of the shoulder and elbow joints, even in traumatic cases, is comparatively insignificant, while excision of the wrist and hip very frequently proves fatal. It is more dangerous in the knee than in the hip, and from excision of the ankle joint very few recover. Excision of the head of the humerus was performed successfully by Prof. Warren, formerly of Baltimore, to relieve the pain caused by pressure of the head of that bone upon the axillary plexus of nerves, in an unreduced dislocation. The late Prof. Blackman, of Cincinnati, performed a similar operation with equally happy results, on account of rheumatic arthritis.

"There are several methods of exposing the bone. Some prefer the V-shaped incision, others the flap operation. The elder Prof. Pancoast makes a curvilinear incision. These methods afford the surgeon ready access to the joint, and enable him to effect excision with the greatest facility; but they all have the disadvantage of inflicting severe injury upon the deltoid muscle in consequence of the division of its fibres. The simple vertical incision that I am in the habit of using is free from this objection. The incision is begun just below the acromion process, and is carried down through the belly of the deltoid muscle to within a short distance of its inferior attachment. After the parts are exposed it is of primary importance to detach the periosteum, which is so indispensable to the formation of new bone. We must avoid cutting the long head of the biceps muscle. You notice, as I cut down upon the parts, that there is considerable hemorrhage, due to the indurated condition of the tissues from plastic deposits, which prevents retraction of the vessels. You will observe in this case the use of acupres-

sure in controlling hemorrhage. After the tissues are all separated, by rotating the arm there is little difficulty in protruding and removing the head of the humerus. Other things being equal, the smaller the portion of bone removed, the less impairment of function will there be liable to follow. I find the glenoid cavity effaced, the articular cartilage on the head of the humerus destroyed, and some softening of the osseous tissue. A cold compress will be applied to the wound for a couple of hours. The parts will then be brought together and retained by a few interrupted sutures, an oil-tent being placed in the most dependent part to facilitate drainage. The limb will be firmly secured to the body by adhesive strips assisted by the roller, and suffering relieved by a hypodermic injection of morphia.

["The patient was again before the class, six weeks subsequent to the operation, and on the eve of his departure for his home in California. The parts were in a good condition, the patient having suffered no untoward symptoms. The wound was closed, with the exception of a small point at the most dependent part, from which there was a slight discharge of a healthy character.—W. A. J."]

Analysis of One Hundred Cases of Inebriety, received at the New York State Inebriate Asylum, Binghampton, N. Y.

Sixty-four of these patients presented numerous indications of an inherited neurosal diathesis, of which the following symptoms were prominent, either alone or combined:

Fair complexion, and naturally spare bodies, light hair, with flashing, unsteady eyes, changeable countenance, restless animation, often impulsive and jerking in their manners; seldom calm and deliberate. Living particularly in the present, and keenly sensitive to all changes of circumstances and surroundings; easily agitated, with intense functional activity, and so sensitive as to show signs of mental disorder when excited. Their views of life were often unreal, visionary and changeable; they were usually extremists, in both physical and mental activity, and when exhausted were prostrated for a long time. Often they exhibited boundless self-esteem, with

capricious appetites and tastes, or credulity and lack of fixed purpose, that was childlike.

In nearly every case neuralgia and melancholia were prominent; dyspepsia and functional disorders of the heart were also common. Many of these cases exhibited diminished vital energy, bad nutrition, weakness and perversions, with special developments of both mental and physical capacity, the body being out of proportion, with a constant tendency to exhaust itself; inebriety seemed to be the reaction following naturally from the physical and emotional activity.

Of the condition of these cases when admitted, seventy-nine were more or less intoxicated, six had delirium tremens, and eight epileptic convulsions from alcoholism. Ten were unconscious of the place and surroundings when they came, and thirteen were forced here against their will, the others coming with full consent.

A study of the effects of alcohol in the different stages of inebriety bring out many curious facts.

In the first stage, that of excitement, thirty-one cases gave a history of delirium of motion, and agitation, a constant desire to go from place to place, to work and be actively engaged. Twenty-six cases were stupid and inactive, indifferent to every duty that involved action, either physical or mental.

In twenty-seven cases this first stage of drinking lasted from two days to three weeks. In nineteen cases it merged into the second stage in a few hours. Of the mental symptoms displayed, fifty-eight gave a history of great sociability, and taste for the fine arts; and ten were very combative in the first stages. Thirty-nine were filled with delusions generally of power and grandeur, and six entertained fears about their health, and made extraordinary exertions to build it up. In thirty-two cases the organs of generation were stimulated to great activity, and in nineteen cases this function was partially paralyzed.

In the second stage of inebriety, that of stupor, sixty-nine cases gave a history of partial paralysis of the motor system; reason and consciousness, although cloudy, was yet retained. Muscular co-ordination gone, ability to realize the situation fully, but powerless to control the body. In nineteen cases this condition was almost reversed, thorough unconsciousness existed, and the motory

functions and co-ordination were only slightly disturbed. Four of these cases would go about transacting business, entirely oblivious to all surroundings. In one case the patient was alarmed at finding various sums of money on his person when he recovered consciousness after a drinking bout. For a long time he could not discover where it came from, until it was ascertained that after drinking so much liquor, he cunningly secreted a large basket of toys and trinkets from his store, and sold them in the country, returning at night, so that his presence was not missed.

Inebriety inherited direct from parents was traced in twenty-one cases. In eleven of these the father drank alone, in six instances the mother drank, and in four cases both parents drank.

In thirty-three cases inebriety was traced to ancestors more remote, as grandfather, grandmother, etc., etc., the collateral branches exhibiting both inebriety and insanity. In some instances a whole generation had been passed over, and the disorders of the grand-parents appeared again.

In twenty cases various neurosal disorders had been prominent in the family and its branches, of which neuralgia, chorea, hysteria, eccentricity, mania, epilepsy, and inebriety were most common.

In some cases a wonderful periodicity in the outbreak of these disorders was manifested.

For instance, in one family, for two generations, inebriety appeared in seven out of twelve members, after they had passed forty, and ended fatally within ten years. In another, hysteria, chorea, epilepsy, and mania, with drunkenness, came on soon after puberty, and seemed to deflect to other disorders, or exhausted itself before middle life. This occurred in eight out of fourteen, extending over two generations. In another instance, the descendants of three generations, and many of the collateral branches, developed inebriety, mental eccentricities, with other disorders bordering on mania, at about thirty-five years of age. In some cases this lasted only a few years, in others a life time.

In many of these cases mental peculiarities, with eccentric habits of work and living, were inherited, which seemed to predispose to inebriety.

A weak will-power, coupled with a sensitive nervous system, seems to be inherited in most cases of inebriety.

Among the exciting causes noted, dyspepsia, with irregularities of living, including want of work and proper rest, were noted in thirty-one cases. From injury to the brain, or nervous system, as in concussion or blow, on the field of battle or at a railway collision, or proximity to electrical currents, six cases were well marked.

Eight cases evidently originated as the sequel of meningitis, typhoid fever, and hemorrhages, both gastric, intestinal, and pulmonary. Ten cases were attributed to prescriptions of liquor given by physicians, but in most of these cases there was a diathesis favorable for such a condition, inherited or acquired.

Loss of property, death of relatives, disapointment in business and love, or ambition, seemed to be the exciting cause in eleven cases; but a farther acquaintance with each case indicated a strong emotional and impulsive mind, predisposed to the extremes of hope or despair.

The history of ten cases was that of indiscriminate indulgence in foods and condiments from infancy, and consequent depraved vitiated tastes, with inebriety following as a natural consequence.

Inebriety was clearly traceable in four cases to shock from first sexual intercourse, and in three instances there was evidently some connection, as an exciting cause, with intermittent fever.

Bad sanitary surroundings acting on a nervous diathesis, and syphilis, exposure to cold, changes of climate, exciting work, etc., were noted in the remaining cases.

In a more detailed study of the history and causes, two forms of inebriety appear to be prominent.

One arising from general causes, similar to those producing insanity and other neuroses, of which inebriety is but an accidental phase or development.

The other form is inherited direct, or follows invariably, as the result of particular conditions and circumstances.

In the prognosis, sixty per cent. were physically much debilitated, and the rest and quiteness of an asylum were particularly needed.

Twenty per cent. were mentally feeble from the immediate effects of alcohol, and continuous excitement. In an asylum restoration follows in nearly every case. Eighty per cent. will go away restored, fifteen per cent. will relapse the first year, and ten the next, and after that five per cent. for two or more years, then it will grow smaller.—*Quarterly Journal of Inebriety.*

The Relation of Melancholia to Inebriety.

Distinct periods of depression are very commonly associated with inebriety. Often these conditions are so intense and prominent as to exert a very marked influence over the case. Sometimes it precedes inebriety as an exciting cause, as seen in the following case:

H——, a lawyer, age 41. Mother nervous and neuralgic for years. Father died of rheumatism. Has been an active temperate man. Married, of high social position, wealthy, and his relations amicable; no history of any mental disorders in himself or family. In 1866 he worked unusually hard for several months, taxing his mental powers incessantly; completing his labors, he went to the sea shore for rest.

Here, without cause, he became depressed, which increased to the deepest melancholia, and, as he described it, "he was pressed by a dark cloud on all sides." This lasted several days, then passed away in the night as suddenly as it came.

An interim of two months passed, during which he complained of neuralgic pains, which he believed to be rheumatic, supposing it to be inherited from his father; then his melancholia returned, and lasted a week. He sought the advice of eminent physicians, and was under treatment for two years, with but little benefit. His mind remained clear and free from delusions, except fear of insanity, and the attacks recurred three or four times every year.

In 1869, while suffering from a severe attack, an impulse to drink liquor came on with such force that he rushed to a saloon and drank several glasses of brandy, and after sleeping a few hours, awoke free from this feeling. Months later this desire to drink appeared with the return of the melancholia, and the latter disappeared after drinking as before.

From this time he drank on the approach of every period of depression, or melancholia, with the same result; the desire for liquor taking the place of these attacks. Two years later he was a confirmed inebriate, and went to an asylum for relief. He remained six months, and was a year later in good health, although not able to bear much mental fatigue.

In this case the melancholia originated in some cerebral disorder, and became the exciting cause of inebriety, of merged into it, and will possibly break out again.

This extreme case typifies all the lesser forms of psychical depression which precede inebriety, often unnoticed and obscure.

Melancholia in various forms and grades always follows inebriety after a certain stage, as illustrated in the following case:

B——, a farmer, 38 years of age. A vigorous, temperate man, born of healthy parents. After an attack of typhoid fever began to drink liquor moderately, and three years later was a periodical inebriate. These attacks of drinking are followed by great depression. All interest in himself or friends is lost, and he wanders around aimlessly, sometimes filled with delusions about his health, or alarm at the prospect of death. The cravings for liquor and its gratification only deepens this gloom, which is relieved by complete intoxication. This condition seems to follow every period of drinking, until nature has exhausted herself, then sobriety follows.

Many of these conditions are associated with diseases of the liver and heart, and melancholia seems to be both the sequel and exciting cause. Dyspepsia and hypochondria, when followed by inebriety, are attended with melancholia that is very positive and intense.

Often melancholia is continuous with conditions of hyperæsthesia and neuralgia, and other perversions.

Frequently these periods of depression following inebriety take on forms of great muscular activity, in which the patient is agitated, walks continuously, and is unable to be quiet. Or this condition is reversed, perfect quiet is sought for, and great impatience is manifested at any noise or agitation.

Melancholia attended with strange gustatory sensations, not a craving for liquor, but an almost insatiate appetite, or total loss of desire for food or drink, is very common.

These and many other forms of psychical depression, called melancholia, are so intimately connected with inebriety, both before and after this disorder begins, as to require separate study before we can understand the therapeutical indications.

Melancholia is usually an early symptom of mental disease, the direct cause of which is sometimes anæmia of

the brain. When coming on with inebriety, or before it, many of the phenomena distinguishing it in all cases are present. Inebriety may be a phase of melancholia, diverging to health, or concentrating into other forms more fatal; or melancholia may be a hint of the first stages of grave mental disorders.

Melancholia has been called psychical neuralgia, beginning in the sensory centres of the cortical substance of the brain, analogous to neuralgias in the sensitive sphere of the cerebro-spinal axis.—*Quarterly Jour. of Inebriety.*

Treatment of Opiamania and Morphiamania.

Two distinct methods of treatment are prominent in the management of this affection.

The first reduces the quantity of opium taken from day to day, until the patient is completely weaned from the drug; the other plan is to take the opium away at once, abruptly ending the disorder.

It is a curious fact that the abuse of opium and morphine produces the same phenomena as that for which it is indicated as a remedy.

The principal symptoms of which are hyperæsthesia, neuralgia, sleeplessness, anxiety, depression, and irritability. When opium is withdrawn, either suddenly or gradually, these symptoms are intensified, particularly those affecting the cerebro-spinal and vaso motor system.

Dr. Levinstein, of Berlin, read a paper on this subject, which is printed in the London *Medical Record*, containing the following very clear statement of the first method of treatment:

In the treatment of this affection, the sudden withdrawal of morphia is preferable to its gradual diminution, The organism bears rough and energetic interference better than that which acts slowly, as we see in surgical and obstetric operations. The successful treatment of morphia and opium-cravers is impossible, unless they are treated as prisoners. While the morphia is withdrawn they must be isolated, and be constantly watched by educated persons, inaccessible to all attempts at corruption. Such persons are found with difficulty; for some secretly bring morphia to patients for the sake of reward, and others cannot resist

the pathetic entreaties and severe sufferings of the patient. * * *

Windows and doors must be closed against all communication with the outer world. The patient's clothes, the sofas, the cupboards in his room, must be repeatedly examined; for it is characteristic of every morphia-craver, who comes voluntarily or involuntarily into an institution to be cured, that he secretes morphia or opium about his person.

The physician must not rely on any promises, or the most solemn assurances, or any word of honor the patient may give. Opiamania and morphimania, like other disorders, sets aside the character of the individual; the most educated, the most intelligent and judicious, eschew no means, no trick, to deceive the physician, and secure this drug. * * *

If the physician be energetic, observe his patients constantly, and have control over the watchers, and these be honest, the most difficult part of the treatment is over in eight days. After the morphia has been withdrawn twelve hours, collapse usually sets in; the patient should therefore keep his bed, and for the first eight days be not deprived of the use of stimulating wines, in some cases alcoholic liquors are necessary in large doses. If the collapse should be severe, and life be endangered, subcutaneous injections of liquor, ammonia, anisatus, or even of morphia may be necessary. During the first forty-eight hours after the withdrawal of morphia, if the patient does not groan and lament, if he be able to eat during the first days, and if his countenance be animated, he has, in spite of denial, secretly used this drug.

The narrowness of vision, and absence of diarrhea, will soon confirm this impression.

Great distress, restlessness, and despair, affect the patient during the first three or four days.

Attempts at suicide at this time are common, and must be watched and provided against.

Prolonged baths are a valuable remedy for the neuralgia appearing at this time. Diarrhea should be treated with care only when it becomes exhausting. Vomiting, which may appear in the early stages, will yield to no remedies, and requires perfect rest of the organ, by nourishing the patient through the rectum. Alcohol, if taken with the opium, should be continued during the treat-

ment, until the patient can take regular nourishment. After the third week these severe symptoms end, and from that time general hygienic treatment, with mental occupation, good food, and fresh air, soon raise the depressed powers, and health returns.

By the other method—the gradual diminution of the quantity taken—there will be at first an increase of the reflex irritability, and general feeling of languor and discomfort. Later, neuralgia and convulsive movements of the body, with temporary nausea and vomiting, also hyperæsthesia, or anæsthesia, intense and aggravated, with insomnia, diarrhea, mental despair, extreme irritability, and other symptoms of variable character. All of which will alternate at irregular times, with intervals of relief, and freedom from all distress. The patient will be buoyed up with hope of speedy recovery, and in a few hours writhing under agonizing torments, tempted to commit suicide, or anything for relief. A single dose will end these sufferings, and a renewal of hope and courage follows. This is repeated for three or four weeks, the agony and distress from want of this drug growing less, and the periods of relief becoming longer, until recovery. In the first method all the distress is concentrated within a few days; in the latter it is extended over a few weeks, with intervals of relief. A clinical comparison of the two methods, in the treatment of several cases of similar character, would be of great interest to the profession.—*Quarterly Journal of Inebriety.*

Professor Hebra on the Influence of Water on the Skin.

Professor Hebra commences a paper published in the first two numbers of the *Wiener Med. Woch.* for 1877, with the motto, "Gutta cavat lapidem non vi, sed sœpe cadendo;" and goes on to say that both in scientific works and in verbal statements assertions are made in respect to the influence of water, which are justified neither by scientific principles nor practical observations. In the observations he wishes to make on the matter, he confines himself to the influence exerted on the skin, without going into the general question of the merits or demerits of hydrotherapeutics. And first as to its influence on the

healthy skin. It is the general opinion that frequent cold and warm baths, and washing the skin with cold water, followed by friction, are conducive to health, and do no harm. This conclusion can not be admitted; for, on the one hand, millions of men take no baths of any kind, and at most only slightly wash their face and hands once a week, and yet live to old age in the enjoyment of good health; while, on the other hand, no one is able to prove that the use of the various forms of baths wards off disease, or that washing in cold water furnishes any protective power against catarrh, rheumatism, etc.—diseases supposed to arise from catching cold. A comparison of the frequency of disease in towns where baths are frequently resorted to, and in the country, where they can rarely be got, says but little for their prophylactic power. And although it can not be said that their frequent employment in towns is a cause of the greater mortality therein, neither can it be said that baths, and especially washing the body "all over" with cold water, is any protection against disease. As long as this "water manipulation" is accompanied by an agreeable general sensation, and no eruption on the surface of the skin results, it may be pursued as a pastime or amusement; but as soon as the skin reacts against the repeated irritation, and great itching, or erythema, urticaria, eczema, etc., are produced, the bathing and washing should at once be stopped, if we do not wish to induce skin diseases which may require months or years for their cure, and cause the subjects of them immense inconvenience. Much will depend upon the nature of the water used, and the mode of its employment, as simple warm and cold baths do not induce the same irritation of the skin as when they are accompanied by friction, douches, etc., or when the action of the vapor-bath is rendered still more intense by shampooing, brushing, etc. The consequences of such irritation sooner or later show themselves in the shape of permanent redness, a sensation of burning or itching, and the production of nodules and furuncles, which precede the formation of pustules and abscesses. These appearances, which formerly were regarded as critical and of good omen, should be attributed, as they are really due, to the mischievous effects of water. Every physician attached to large hospitals is familiar with the eczematous condition of the hands and arms of those of the working classes whose oc-

cupations compel them to manipulate water. To this class of affections belong the so-called bath-eruptions, the phydracia thermalis. So also the affection, termed by Professor Hebra eczema marginatum, is often induced by the prolonged application of wet bandages to the body, and surrounds the abdomen or back like a girdle, proving most obstinate in treatment, causing violent and incessant itching.

If the reaction consequent on the prolonged employment of water will induce these effects on the apparently healthy skin of persons in good health, we may judge how much more frequent and intense will be its irritating effects on the skin when in a diseased condition. The skin does not first become "diseased" only when the redness and swelling of the numerous eruptions appear, but when its power of resisting injurious influences is diminished. Experience teaches us that those portions of the skin which, by reason of the pressure of articles of clothing, bandages, etc., or of the application of mustard-plasters, etc., become reddened, are the parts at which on the subsequent occurrence of diseases of the skin (as scabies, variola) the eruption shows itself in much greater quantity than in the other parts where neither pressure nor other irritant has been applied. The application of cold or warm compresses, and other proceedings of hydrotherapeutics, render the skin in the same way more sensitive and less able to resist noxious influences. How far the condition of other organs may be benefited by the manipulations that are injurious to the skin is another question. It is very commonly supposed that the effects of these applications may differ in their influence on the skin accordingly as they are used cold or warm—that is, between 5° C. and 40° C. But, as regards compresses, every one must have observed that, at whatever temperature they may be applied, they soon are equalized to that of the skin, unless they are frequently renewed. In an inflamed state of the skin, as in erysipelas, anthrax, furuncles, etc., it matters little whether they are treated with ice or hot cataplasms, as regards the progress of the disease; and in deciding upon the temperature to be employed, we should be guided by the subjective sensations of the patient. Every one must be aware that the different sensations felt after leaving a warm and a cold bath are due to the difference in the temperature of the surrounding air, and are of very

short duration, as such temperature soon becomes equalized; and, in fact, the irritating effect of water can not be attributed to the temperature at which it is employed.

In searching for other properties to which this may be due, we have to consider the softened and macerated state of the epidermis which baths induce, separating the old layers, which are removed by the subsequent rubbings, considerable quantities being held also in solution in the water of the bath. The cutis thus becomes exposed to the irritating effect of the water. Upon this are based the indications as to the use of water in treating diseases of the skin. Its employment is contra-indicated in all sensitive, irritable persons whose skin is liable to prolonged redness, the production of rashes, and itching; in all cutaneous affections accompanied by acute swelling and serous infiltration; and in all chronic dermatoses in which the horny layor of the epidermis—either through the effects of disease or of remedies—has been removed, exposing the layer beneath. Thus it is not proper to employ water soon after using stimulating substances externally, as arsenic, iodic mercury, etc. By avoiding water, and employing starch or other inert powder, the healthy state of the surface will be much sooner restored. Water, on the contrary, is indicated in those diseases where its macerating and irritating effects are useful, viz., in chronic dermatoses, such as psoriasis, lichen, ichthyosis, pityriasis rubra, old eczema, prurigo, etc. Water also exerts the most beneficial effects when different secretions —the products of inflammation, and the remains of dead tissue—have to be removed, as in abundantly suppurating wounds, ulcers, and gangrene. It is useful also in favoring the formation of new epidermis in pemphigus, and after extensive destruction of the skin by burns or caustic substances.

After some observations upon the time which patients can continue in baths without ill effect on the skin, and for the purpose of obtaining its therapeutical effects, Professor Hebra terminates his paper with the following conclusions:

1. Water is not an indifferent body in its action on the skin, but excites in it considerable irritation, which may give rise to diseased conditions of the organs.

2. Temperature does not play the chief part in the employment of water, which is due to the macerating action, and consequent irritation.

3. In prescribing compresses, ablutions, baths, etc., so far as the temperature is concerned, we should be guided by the subjective sensations of the patients.

4. General ablutions or baths, whether cold or warm, do not serve in any way as prophylactics against disease of the internal organs, while they frequently give rise to a diseased condition of the general surface.

5. If baths are to prove useful in diseases of the skin, they must be continued for a long period, *i. e.*, not under an hour at least. Warm baths in appropriate cases may be continued uninterruptedly day and night for months. —*Med. Times and Gaz.*

Cause of Infantile Diarrhea.

Dr. Richardson, in Report of City of Boston Health Board, cites the results of Baginsky's researches merely as additional evidence of the unsuitableness of particular articles of food, without attempting to draw further conclusions from the facts observed, the object of his paper being to present certain information in a somewhat popular form. These new data appear, however, to suggest a theory of the pathogenesis of summer diarrhea, which, in the absence of any more satisfactory explanation of the phenomena, may perhaps be ventured upon. According to this theory the generation of summer diarrhea is chiefly due to a single morbific agency, namely, the ingestion of more or less decomposed food, this contingency being itself dependent upon a combination of conditions, all of which had separately been recognized as deleterious to infant life. Each then of the successive investigators of infantile diarrhea in Leicester, was partially correct in his surmises when incriminating certain harmful conditions. The solar heat cited by one, the impure milk adduced by another, the ill-drained and sewage-logged subsoil, and the choked sewers brought forward by others, in explanation of the phenomena under investigation, were all but so many separate factors contributing to a common result—rapid decomposition of the infant's food.

This theory of infantile diarrhea appears to account, in a tolerably simple and at the same time comprehensive manner, for nearly all the phenomena involved in the

problem which it is intended to meet; it conciliates the diverse ætiological views hitherto entertained on the subject, and assimilates as so many concurrent factors the various morbific agencies whose harmfulness has already been unequivocally demonstrated.

The preventive measures indicated by this theory should be directed against each of the controllable factors concerned in the generation of infantile diarrhea. Setting aside the excessive heat of our summers as being of course beyond our control and almost wholly unavoidable, the liability of the infant's food to be rendered poisonous by decomposition can undoubtedly be lessened, on the one hand, by measures designed to encourage and facilitate maternal lactation or wet-nursing among the poor; and on the other hand by such purification of the air as would result from establishing suitable provision for ventilation, house drainage, and public sewerage in the crowded districts of the city.

The measures proposed by Dr. Richardson for the reduction of the death-rate among infants are in accordance with these views, being as follows: 1. Greater attention to the general sanitary condition of the city and the adoption of an improved system of sewerage. 2. The establishment of public parks and squares in and about the city. 3. A systematic and frequent inspection of the homes of the poor. 4. The dissemination of the rules which should govern the bringing-up of children. 5. The establishment of diet-kitchens. 6. The establishment of country homes. 7. The establishment of infant day-asylums. 8. The establishment of foundling-hospitals. 9. The isolation of contagious diseases.—*Boston Med. and Surg. Jour.*

The Use of Water to Relieve Pain.

The hypodermic use of water for relieving pain continues to afford an interesting object for experiment. The evidence in its favor could not be stronger, although little attempt is made to explain to us why or how water should quiet pain. Dr. Lafitte, of Nantes, has used water subcutaneously since 1872, when he succeeded in immediately relieving pain in a woman who was suffering most acutely from lumbago. Eight grmm. of distilled water

was injected, and the pain did not return. In cases of sciatica, supra-orbital and facial neuralgia, as well as in intercostal neuralgia and rheumatic affections of the joints, he has found water injected subcutaneously quite as useful as morphia. Dr. Pillet speaks highly of hypodermic injections of water in lumbago and intercostal neuralgia. Dr. Lelut says that for the last three months he has used pure water injections with the best results. He relates how he came to use it. His servant one day upset the bottle containing his morphia solution for subcutaneous injections, and, to conceal her clumsiness, filled the bottle with ordinary water. Dr. Lelut, not knowing this, injected the water into the thigh of a patient who was suffering severely from sciatica, and whom he was treating by the subcutaneous injection of morphia. The patient was astonished at the instant relief of the pain and said: "What kind of a liquid is this you are using which causes me no uneasiness or no sickness at the stomach like the former?" Since then Dr. Lelut has used nothing subcutaneously but water.

Dr. Dresch praises the usefulness of this injection, especially in muscular rheumatism. He also tells of a case of osteo-sarcoma of the thigh, in which he used daily 60 ctgm. of morphia subcutaneously, chloral, cicuta, and other remedies, and where hypodermic injections of water succeeded in relieving the pain quite as well as morphia, without producing the disagreeable constitutional effects of that drug. Dr. Dresch does not use simple water, but prefers peppermint water.

Dr. Burney Yeo, of London, says he found subcutaneous injections of water useful in relieving the pain of a patient suffering from thoracic aneurism.

A Case of Hydrophobia.

By C. L. Edwards, M. D., Hyde Park.

Miss A. B. was bitten last August, between the fore and middle fingers of her right hand, by a small black-and-tan terrier dog. The injury was so slight that she did not send for medical aid, but sucked the wound, after which she applied Friar's balsam and pork rind. It healed rapidly and she thought nothing more about it; the dog was

killed to satisfy popular superstition, but was not supposed to be rabid. On February 14, 1877, while washing the tea things in warm water, she suddenly felt a "sharp, stinging pain" at the seat of injury, which during the evening and night extended up the arm to the shoulder. The next morning there was great difficulty in swallowing, and a feeling of constriction in the neck and upper part of the chest. She being then at Norwood, sent for Dr. Fogg, who immediately recognized the disease and advised removal to her home in Hyde Park, where she arrived at four P. M. the same day. I saw her at five P. M. She was then on a lounge, her tongue clean, skin cool, pulse 95 and hard. There was nothing unusual about her appearance. I noticed that when answering questions she spoke during the act of inspiration. Otherwise she was calm and tranquil, but on offering her some water from a teaspoon the true symptoms presented themselves; at sight of it severe contraction of the muscles of the throat occurred, accompanied by a sort of spasmodic sobbing, which as the spoon approached her lips was fearfully increased. She tried bravely to take the water, but, with the exception of a few drops after great exertion, it was impossible. At my suggestion she went to bed; I gave her one-sixth of a grain of sulphate of morphine supcutaneously, ordered hot bricks to her feet, and injections of beef tea and brandy into the rectum *pro re nata;* perfect quiet was enjoined.

At three o'clock the next morning I was called, the messenger telling me that the poor girl was suffering terribly. I found her on her back, the hands clutching at the throat and chest, with severe spasms of muscular contraction; the pulse was 120; the skin very hot and moist; she had passed urine and retained two injections of beef tea and brandy, which had been given as ordered. A quarter of a grain of morphine injected into the arm gave her comparative ease, but no sleep. I went home at six A. M. Accompanied by Dr. W. S. Everett, of Hyde Park, I saw her at 10 A. M.; she was tolerably quiet when all surroundings were still, but the opening of a door or the rustling of a dress would immediately bring on the spasms, and the attempt at swallowing was so painful that we thought it best to abandon it altogether. Her only complaint was that her head was dizzy and she felt "so, so tired;" pulse 120.

I saw her at one P. M., in consultation with Dr. C. C. Holmes, of Milton. The symptoms were rather more aggravated. She was ordered tincture of aconite, chloroform and alcohol to spine, and morphine sulphate, one-sixth grain, with chloral hydrate, grs. v. subcutaneously, as occasion required. During the afternoon she gradually grew worse, her urine passed involuntarily, and the throat got very dry and parched; she would make violent unsuccessful efforts to vomit, coughing frequently, spitting out a thick bloody mucus, which she would take in her fingers and pull from her mouth, not being able to permit even the approach of a handkerchief to her face. "Water," was now her cry, "give me water," and so eager was she to relieve the dryness of her throat that some water would actually be swallowed before she seemed to be aware of what she had done, and then the spasmodic choking would come on more severely.

During the night following she had short periods of comparative ease, but the end seemed surely approaching. When the spasms now occurred they became more general, the body and lower extremities being terribly convulsed, so much that it required half a grain of morphine once an hour for three sucessive hours to afford her any relief, and that was but little. The pulse became intermittent, ranging from 150 to 160. For two hours previous to death, which took place at 9.30 A. M., she was almost free from spasms, and she talked glibly of things which happened a year or two before, going through minutely the history of her dog bite. A little after nine A. M. she was seized with a severe spasm, and died asphyxiated in less than half an hour.

There were no attempts made at any time during her sickness to bite or to bark like a dog, but there was a very harsh dry cough which I can easily imagine that the ignorant might have conjured into a bark. It was just sixty-two hours from the time she first felt the pain in her hand until death ensued.—*Boston Med. Jour.*

The attention of physicians is again urgently called to the fact that color-blindness is becoming an increasing cause of accidents on railroads. Very often employees are wholly unable to detect the different signal colors. Every railroad company should now know this important fact.

Microscopy.

Dunkirk (New York) Microscopical Society.

The regular meeting of this Society was held on Friday evening, Jan. 12, 1877, Dr. G. E. Blackham, Pres't, in the chair, and a full attendance of members and visitors. The minutes of the last meeting were read and approved.

Prof. H. L. Smith, of Geneva, N. Y., was proposed for corresponding membership.

The ballot was passed, and Prof. J. A. Thacker, of Cincinnati, Ohio, was elected corresponding member of the Society.

A communication was read from Lieut. W. L. Carpenter, U. S. A.

There being nothing farther to come before the business session, the scientific session was opened, and the Pres't announced the essay for the evening: Subject—"Martynia as an Insectivorous Plant," by Mrs M. E. C. Shelton.

This curious annual is cultivated for its seed-pods, which are said to make excellent pickles. The branches and leaves are covered throughout with minute hairs. From the free extremities of these hairs exudes a viscid fluid, in which small insects are caught and held fast. This fluid has some of the properties of gastric juice as found in the stomachs of animals, and is said to have the power of digesting the insects thus caught. The nutriment thus furnished passes through the hairs into the circulating fluid.

The essayist spoke from personal observations of the plant and its habits made during the past season.

The subject is exceedingly interesting, and was admirably presented in the paper read.

An animated discussion followed the reading, which was participated in by the various members present, eliciting the statement from Dr. Mark, that in his opinion there is no sharp line of demarcation between the lower forms of the animal and vegetable kingdoms. The power to assimilate organized substances has, until quite recently, been considered the distinguishing feature between the two kingdoms.

An adjourned meeting of the Society was held on Friday evening, Feb. 23, 1877, Dr. Blackham, Pres't, in the

chair. The evening was stormy, and there was but a small attendance.

The minutes of the last meeting were read and approved.

Rev. E. P. Adams, of Dunkirk, was proposed for membership.

The ballot was passed, and Prof. H. L. Smith, of Geneva, was elected corresponding member of the Society.

Communications were read from Prof. J. A. Thacker, of Cincinnati, Ohio, and Dr. J. G. Hunt, of Phila., Pa.

The Secretary reported additions to the library and cabinet for the month: *Field and Forest* for January; MEDICAL NEWS for January.

There being no further business, the scientific session was opened, and the essay for the evening announced by the Pres't: Subject—"The Use of of High Powers on Opaque Objects," by G. W. Moorehouse, Esq., of Wayland, N. Y. Mr. Moorehouse not being present, Dr. Blackham read the essay, and illustrated it with a Beck's illuminator, kindly forwarded by Mr. Moorehouse for the purpose.

The paper was one of much interest, and presented the subject of illumination in a manner quite novel to many of those present. Owing, probably, to want of familiarity with the illuminator, only an imperfect illustration of the paper could be given by the reader, and discussion was postponed until some future time.

After a pleasant hour spent in the examination of new objects and accessories of the microscope, the essay for the next meeting was announced: Subject—"Microscopy of the Blood," by Dr. C. P. Alling, and the Society adjourned. C. P. ALLING, *Secretary*.

Opaque Objects with High Powers.

Read before the Dunkirk Microscopical Society, Feb. 23, 1877.

A few words, giving experience in the use of Opaque Illumination with the Highest Powers of the Microscopê, may not prove entirely without interest. Some of the powers now successfully used in this way have even been thought extraordinary when used with transmitted light, and this may have led some persons to doubt the practi-

cability of this method, and so prevented their giving it a trial. There are no natural tests yet known to have been well defined by the best microscopes that may not be seen with a power of 500 diameters. Of course it is often necessary, in order to understand the structure—say to distinguish circular markings from hexagonal—to resort to an amplification of 2000 to 4000. Can such powers be profitably used with illumination from above the object?

Many errors of interpretation arising from the use of transmitted light might be avoided if we could view all microscopic objects by light reflected from them, as we do almost every thing we see with the naked eye. Yet with careful and practiced use of transmitted light the same results may be obtained on suitable objects.

Place a thin leaf of honey comb between your eye and a lamp, and mark the varying appearances and shadows as you increase the distance between the object and the eye, and as the position of the lamp is changed from central to oblique. Something of an idea of the difficulties of interpretation accompanying ordinary methods of illumination may thus be obtained, both as produced by changes in focal adjustment and in position of mirror.

Attempts have been made to use high powers on opaque objects by making pointed-nosed objectives, and also by constructing conical front lenses, and these methods have met with some degree of success with objectives as high as dry $\frac{1}{4}$ths; but as the finest views of the smaller objects and minute structural peculiarities can only be got with immersion objectives of wide angle of aperture, that necessarily have short working distances, other plans had to be invented. One proposition was to throw the light down one tube of a binocular instrument and view the object in the other tube, thus making the instrument its own illuminator. Previously, Prof. Smith had devised a plan by which the objective itself was made the illuminator, light being reflected downward into it by means of a small silver speculum. The light was admitted to the speculum through an aperture in the tube, or an adapter above the objective. As all are aware, several opticians have made more or less important modifications of this device. The one I have used is described in Carpenter, fifth edition, page 153, under the name of Beck's Vertical Illuminator. It is simple, cheap, easily removed and cleaned, and admirably suited to the purpose for which it

was made. It consists of a disk of thin glass attached to a milled-head, and placed in an adapter fitted with the society screw, and placed between the objective and the body of the instrument. The light entering the aperture is reflected by the glass disk downward into the objective, and by it concentrated upon the object.

In using the instrument, as a general thing, the lamp should be placed about eight inches from the aperture, and opposite it, but, on some objects, it is desirable to change both distance and position. The German student's lamp is poorly adapted for this work, and I have found the ordinary flat wick or sun-burner to serve a much better purpose. The lamp should be placed with the flame edge-ways toward the aperture, and the narrowest possible image of the flame brought to the centre of the field of view. The image of the flame as seen in the instrument should be so perfect that any flickering of the blaze may be distinctly seen. A small bright image of the flame may be seen on the under surface of the slide with a pocket magnifyer. The mirror under the stage may be used with advantage to find and centre the object, and at times illumination, both from above and below, may be used advantageously in determining the character of the study.

Dr. Carpenter speaks of the Vertical Illuminator being "specially applicable to diatoms, Polycystina, minute foraminifera, and the scales of insects, viewed under objectives of from $\frac{4}{10}$ths to $\frac{1}{5}$th of an inch." Evidently this means dry-working objectives. A few gentlemen have used it with immersion objectives. When an immersion lens is used, the whole aperture of the objective is available, both as a condenser and an objective, for the light passes through the glass cover to the object without reflection from the upper surface of the cover, as would be the case with all rays striking the cover at an angle of total reflection, if a dry front was used.

I have used this illuminator with excellent results with $\frac{1}{10}$th and $\frac{1}{50}$th immersion objectives, with lamp as described above. Improved effects may sometimes be produced by introducing the hand or a diaphragm between the lamp and reflector, cutting off a portion of the light, and such tests as *Pleurosigma Spencerii* and *Navicula rhomboides* may be well resolved.

The object should be mounted dry, and in close contact

with the covering-glass, so that the extreme oblique rays will pass to it, and not be reflected from the lower surface of the cover. The usual care must be taken in correcting the objective for thickness of cover.

I append selected memoranda of observations to show the utility of this mode of using the microscope, and venture to presume that no one will deny the general trustworthiness of illumination by reflected light, or the fact that errors of interpretation are less likely to creep in with it than with ordinary transmitted light. Objects are seen in their natural colors, and the views obtained of such specimens as the scales of insects are indeed beautiful. This is also true of numerous other objects.

The scales of *Macrotoma major*, *Lepisma saccharina*, *Deegeria domestica*, and *Lepidocyrtus curvicollis*, I have been able to see better, and the true character of the markings more satisfactorily indicated, than by any other method of illumination. It may not be out of place to state the fact that no semblance of the so-called beading is to be seen on any of them. The Macrotoma and Lepisma, like the scales of the gnat, show only the longitudinal, or, as the case may be, radiating ribs, with the transverse and often irregular and waved corrugations or wrinkles. The smaller scales of any of the insects named show almost as easily and distinctly as the larger, the resolution is so much superior to that ordinarily employed. With the Tolles immersion, $\frac{1}{50}$th powers of x2500 and x4000 were employed; and with Tolles' four-system $\frac{1}{10}$th, x500, x1000, x2000, and x4000, the last two by using $\frac{1}{2}$ inch and $\frac{1}{4}$ inch solid eye-pieces. The objects were well defined, with enough light, even with the highest powers used.

The Deegeria scales are covered with short or interrupted ribs, or long spines, adhering to the surface of the scale; a structure intermediate between the true ribs of the Macrotoma and the short spines of the Podura scale. It must be remembered that these three insects are very closely allied. That Podura scales are really armed with projecting spines I consider as proven by the experiments of Dr. Arnold, of New York, a few years ago; but if any further proof was needed, the *demonstration* is complete by this method of illumination. Both on the scales of the American Podura and the British Lepidocyrtus Podura,

the spines are seen distinctly projecting anywhere on the surface of the scale, and also over beyond the end of the scale farthest from the body of the insect. The inference would appear to be that the scales are undeveloped hairs, and the spines secondary hairs, and that the latter are in some species modified, or imperfectly developed, so as to form ribs.

Of the many diatoms examined I only mention one, the *Pleurosigma angulatum.* Some of the specimens of this test were mounted by Möller, and others by Wheeler. All are seen in hexagons, and with great distinctness; not, however, surpassing results obtained by other illumination. I send with this communication a slide of broken specimens of a coarsely marked variety of this diatom, found in Nottingham earth. I think it will readily be seen that the line of fracture runs through the hexagonal areolæ, often leaving the points of the network projecting. The Vertical Illuminator confirms this idea of the structure. It will be noticed that some of the fragments of Angulatum on this slide are split into two layers or plates; the two plates are quite distinct, and the line of fracture of each may be easily traced in some of the pieces. With the $\frac{1}{10}$, and a $\frac{1}{2}$ inch eye-piece, with either the opaque illuminator or an objective used as an achromatic condenser, the edges of the fractured specimens are clearly defined. Although the Angulatum is made up of two plates like Coscinodiscus, the two plates are much nearer alike than they are in Coscinodiscus.

The coarsely marked diatoms are displayed with great beauty under this reflected light, and one can have but little doubt in regard to their true structure; and this in a still greater degree is true of insect scales. On the whole, then, opaque illumination, with high powers, cannot be said to be a failure, but, on the contrary, almost or quite keeps pace with the easier problem (as far as construction of accessories is concerned) of illumination by transmitted light, and proves itself a valuable aid, even when the most difficult and strongly controverted questions are attacked.

DIATOMS.—In a previous number of the MEDICAL NEWS, we made mention of the mounted diatoms by C. L. Peticolas, Richmond, Va., whose advertisement will be found

in the advertising form. Since then he has sent us a number which we find to be most beautiful specimens. Those who take delight in such objects, and they are certainly the most delightful in the world, should send a few dollars to Mr. P., and receive by return mail a number.

DISSOLUTION OF CO-PARTNERSHIP.—The following letter received explains itself.

Philadelphia, March 31, 1877.

DEAR SIR.—Having withdrawn from the firm of James W. Queen & Co., of which I have been a member for many years, and in which capacity all the microscopic and and other optical branches have been under my immediate personal supervision, I would announce to yourself and such of your friends as may be interested therein, that I am about to open an American branch of the London House of R. & J. Beck, for whom my old firm of James W. Queen & Co. have long been exclusive agents in the United States, and which agency has now been withdrawn.

In addition to the completest assortment of microscopes of all grades, including every description of accessories, mounting materials, and prepared objects in every department of the science, the new house will also keep in stock a full line of optical instruments of all kinds, including spectacles, eye-glasses, opthalmoscopes and trial sights, also, urinometers, clinical thermometers and meteorological instruments, and I need only remind you of the care exercised in filling your orders in the past to assure you of the continuance of the same in the future.

I am about visiting England to complete my arrangements and select my stock personally, and on my return you will be duly informed thereof, and of my readiness to attend to your commands. Any communication, meanwhile, addressed to my residence, 2320 DeLancey Place, Philadelphia, will receive immediate attention.

Yours, respectfully, W. H. WALMSLEY.

London is threatened with a severe small-pox epidemic. To encourage re-vaccination among her subjects, the Queen has caused all members of her household to be re-vaccinated, and the fact to be published by the press.

Translations.

By W. A. Rothacker, M. D.

PHYSIOLOGY AND PATHOLOGY OF SINGING.

By J. Michael, (*Berlin Klin. Woch., 1876, No. 36 and 37*). The action of the crico-thyroid muscle can be imitated by pressure upon the cricoid cartilage. When such pressure is made in a healthy subject, the tone of the middle or falsetto voice is raised, while a low chest tone becomes still lower. If one sings the highest falsetto tone, and then makes the pressure, the voice can be carried from two to five half-tones higher. Pressure upon the Adam's apple brings about a contrary effect, tones of the middle and chest register being lowered in pitch, while falsetto can not be sung. The crico-thyroid is not the only tensor of the vocal cords; indeed the musculus transversus is the muscle of the glottis, which has the special office of tensor. On the other hand, as soon as the processus vocales are approximated, and the crico-thyroid renders tense the vocal cords, it becomes the means of closing the glottis; while, if the arytenoid cartilages are not firmly fixed, it becomes the means of opening the glottis, drawing the cords from within and posteriorly, outwards and anteriorly. A patient, a tenor singer, said that he could no longer sing high notes. He sang from *c* to *fis*, (chest and middle voice,) then in the head voice the tones became cracked, and where the laryngoscopic picture had before been normal, there appeared between the cords a space about 1 mm. wide, slightly elliptical, extending from before backwards to the vocal processes. When pressure was made upon the cricoid cartilage, head-tones could be sung.

In a case of paresis of the internal thyro-arytenoid muscle, the patient sings from *e* to *g* in the chest voice, then passing entirely over the middle voice, he breaks at once into the falsetto, singing from *a* to *c*, and by pressure upon the cricoid to *d*. In a case of paralysis of the transversus, the patient sings from *a* to *c* with tolerable purity in the chest voice, the next three tones fail entirely, and the remaining are weak and impure. In a case of paresis of the transversus and the internal thyroid-artenoid, the higher tones of the chest voice and the middle voice were entirely wanting, while the deep tones of the baritone

from *b* to *f* were sung pretty correctly. With reference to the physiology of singing, the following deductions may be drawn: In singing, all the vocal muscles are brought into action, but the manner and extent of this action varies in the different registers. No one of the three registers requires the full action of all the muscles, rather in each register one muscle is in full action, and brings together the cords already approximated by the others, thus giving the particular tone-character to the register. One muscle gives rise to tones in the chest register, the lateral crico-arytenoid is sufficient. We have, besides the chest register, the middle and falsetto. In these latter, only the margins of the cords vibrate, while in the chest register the entire cords are thrown into vibration. The tone-giving muscle in the middle register is the internal thyro-arytenoid, while in the falsetto the crico-thyroid is brought into full action. The tone-character of the falsetto is produced in this way: the thyro-arytenoid becomes relaxed, and the crico-thyroid then takes upon itself the closure of the elliptical space thus produced. The crico-thyroid is supplied by a special nerve, hence it often preserves its function when the other muscles are paretic. This accounts for the fact that in diseases of the larynx, neuroses as well as diseases of the mucous membrane, that patients so often can speak only in falsetto.—*Centralblatt, No. 2*,

DIABETES MELLITUS: POINTS IN THE DIAGNOSIS AND TREATMENT.

At a session of the Marburg Academy of Medicine, May 3, 1876, Dr. Kulz presented a case of diabetes, and remarked that the diagnosis of the disease is often attended with difficulties. In all doubtful cases he recommended the following procedure: Let the patient empty the bladder and directly afterwards let him eat a large quantity of white bread. For the 3 or 4 hours immediately following the patient must remain perfectly quiet. For 4 hours after the ingestion of the bread the urine must be passed hourly. In examining these specimens of urine it will be found that the greatest qnantity of sugar is found in that which was secreted during the second hour. In twelve cases of the light form of diabetes tne above was observed.

The speaker called attention to the fact already published, that muscular exercise reduces the amount of sugar

in the urine in both the lighter and more severe forms of diabetes. This does not, however, take place in all cases, and as a remedial measure it cannot be used indiscriminately. In cases which had come under the observation of the speaker, he was firmly convinced regarding the good results which had followed systematic exercise. In no case could a vicarious elimination of the sugar in the perspiration be detected. Exercise in the house has little, if any effect; climbing mountains is the most favorable method when diabetic patients have the strength and the inclination to make long marches; and when systematic experiment has demonstrated in their cases that muscular exercise will reduce the excretion of sugar, medicine (whose efficacy is always doubtful) may be laid aside, and vigorous exercise in the open air strongly recommended.

THE TREMOR OF THE AGED.

Tremor in the aged, according to Charcot and Bourneville, is not common. Although the appearance is described as a very ordinary occurrence by authors, professional and otherwise, an examination of all the patients in the Salpetriere revealed but 5 cases, and these were all old women. The head is the most usual seat of the trouble, the motion being forward and back, or from side to side. Sometimes there is tremor of the under-lip and chin. The hand is not so often the seat of tremor as the head. Tremor must not be confounded with rhythmical contraction of the muscles of the neck. As Charcot has established, the disease frequently follows a sudden excitement. In the 5 cases referred to above, 4 followed sudden fright during the war. Pathological anatomy has revealed nothing by which the phenomenon can be explained. Treatment is without result.—*Prog. Med. Berlin Klin. Woch. No. 1.*

FEBRIS RECURRENS IN CHILDHOOD.

(S. Unterberger, *Yahrb. f. Kinderkrankh. x. S. 184.*) Out of 40 cases, 25 were boys and 15 girls, the ages varying between three and thirteen years. The number of paroxysms was 2–3; in one case 4 were observed, and in one other case only 1. The length of each fever period was between 1 and 11 days; in the first paroxysm it was from 4–8 days; in the second from 3–7, and in the third from 1–11. The remissions lasted from 4–12 days. One death occurred, the patient being a rachitic girl 6 years

old. The autopsy showed general anæmia, a pale, fatty, appearance in the muscular tissue of all organs, endocarditis, pericarditis; enlargement and partial fatty degeneration of all the abdominal glands, especially of the liver and spleen, the latter showing also numerous infarctions. It is to be noted that endocarditis frequently occurs in the course of the fever. It is not to be confounded with the anæmic murmurs heard over the heart and vessels. These latter being very transitory. These anæmic murmurs are heard as a rule in the second fever period; they were heard twice only in the third period, and once in the first. Epistaxis was observed in 3 cases. The characteristic appearance of the tongue was never absent, and was regarded as of great value in the diagnosis, *i. e.*, white, moist, slightly coated, and broad in contrast with the tongue of typhoid fever, where the tips and edges are red, and the organ pointed. Angina follicularis occurred once; parotitis twice, in one case bilateral, icterus 5 times. A temporary reduction in the size of the spleen was observed to follow the use of the induced current in several cases; in one case where there was co-existent enlargement of the liver. After faradisation the blood corpuscles increased somewhat in number, and the temperature fell .5° to 1.5°c. Albumen was never found in the urine. Atony of the bladder was observed in 5 cases, coming on in the first remission, and after a high fever; in one case it was observed at the end of the first paroxysm. In two cases, both rachitic children, an erythema maculosum was observed occurring at the height of the second fever paroxysm. The eruption was mainly on the extensor surfaces of the extremities, and it was of short duration. Herpes labialis in 3 cases, and herpes frontalis in one. The changes in the nails, following typhus exanthematicus and abdominalis, as first described by Vogel, were observed in one case. In this case, corresponding with each paroxysm, there was a pale line running across the nail, the lines being separated by portions of healthy nail. More observations are required to establish the importance of this statement. Of diseases of the eye, iritis occurred twice, and hyalitis once. Otitis media with perforation of the membrana tympani was observed once. Muscular pains were seldom found; in one case periostitis of the superior maxilla was observed; in one case there was paralysis of the soft palate, which rapidly disappeared under the use of strychnia. The se-

quellæ were typhus exanthematicus in one case, and varicella in one case, both ending in recovery. In one case variola followed, and the patient died.—*Centralblatt, No. 6, 1877.*

Gleanings.

Inhalation of Iodine.—Dr. Seguin remarks: "I beg leave to say, also, that for more than fifteen years I usually prescribe the inhalation of iodine in forms whose formulary may be found in many drug stores in this city. The most usual of these forms being that of a pillow containing aromatic plants, say seaweed, black walnut or fern leaves, etc., according to secondary indications. In this pillow is introduced a little bag or satchel containing a drachm or so of iodine, in as much of bran as will prevent the too rapid evaporation of the drug. When the satchel does no more smell of iodine it is refilled, and when the pillow begins to smell the pus like odor peculiar to those cases, the herbs are also renewed. Let us remark *en passant* that the alteration of both is in proportion to the gravity of the affection. The pillow must be soft, and broad enough for the head and chest to remain upon it during the night tossings. The urine has to be tested for albumen during this treatment."—*Medical Record.*

Radical Cure for Piles.—Dr. A. B. Bowen, of Maquoketa, Iowa, writes: "In a recent number of *The Record*, my attention was directed to the treatment for *nævus* by hypodermic injection. From the similarity of the anatomical structure of the nævus to hemorrhoidal tumors, I was induced to try the remedy. In the latter I used carbolic acid and ergot (fluid extract) in equal parts, injecting from ten to fifteen minims of the solution into the spongy, vascular hemorrhoidal tumor. This was repeated about once a week for five or six times, when the tumor has entirely disappeared. I have tried this in several cases, and it acts like a specific."—*Pacific Med. & Sur. Jour.*

Prevention of After-Pains.—Dr. Le Diberder (*Ann. de Gynecolog.*) believes that ergot, suitably administered, has the power of preventing after-pains. He gives half a drachm in divided doses, directly after the expulsion of the

placenta, with the object of bringing about a firm and consistent contraction of the uterus in place of the alternate contractions and relaxations to which he says after-pains are due. The *Dublin Med. Press and Circ.*, in commenting upon this statement, calls attention to the opinion of Sir Charles Locock, that after-pains were due to the retention of coagula, and that firm manual pressure upon the uterus to promote their expulsion was never followed by after-pains.—*Southern Med. Record.*

Sulphite of Soda as a Dressing.—Dr. Minnich, of the Venice Hospital, prefers the employment of the sulphite of soda to carbolic acid or salicylic acid, not only as a dressing for wounds, but also in erysipelas. It is much less inconvenient to use, and much cheaper. He applies it in the same way as Prof. Lister does the carbolic acid, and the solution employed consists of one part of the sulphite and one of glycerine to nine parts of water. Its beneficial effects have been proved in a great number of cases.

Suggestions for the Cure of Aneurism.—Dr. Horace Dobell (*British Medical Journal*), makes the following original suggestions for the safe and rapid cure of aneurism: "Stop the circulation above and below the aneurism, and substitute for the fluid contents of the sac a substance insoluble in blood, solid at the temperature of the blood, fluid at a temperature low enough to allow of its being safely brought into contact with living tissues, and changing from liquid to solid without fail and with great rapidity, and which at the same time is light, innocuous, and unirritating. All these conditions are completely answered by either spermaceti, melting at 120 deg., or stearin, melting at 130 deg.; and I submit to the consideration of surgeons whether there is any practical reason why an aneurism should not have its fluid contents withdrawn by an aspirator, and their place filled by melted spermaceti or stearin. Either of these substances would so rapidly and permanently solidify en masse as to be absolutely free from the danger inseparable from either 'active' or 'passive' clots being washed away when the blood-current is again allowed to flow; and the time occupied in their solidification would be so short as to remove all danger of damage from arrested circulation in the parts below the aneurism. I need scarcely add that the subse-

quent blocking of the artery above and below the aneurism will of course go on as usual."—*Louisville Medical Journal.*

Increase of Urea by Exercise.—Dr. Pavy, from observations on Weston during his pedestrian feats in London, has found that during muscular exercise there is an increase of urea excreted. This increase, however, is inadequate to account for the work done. It simply accounts for the wear of muscular tissue. The work done represents the oxidation of carbo-hydrates and the production of carbonic acid and water. It will be remembered that Dr. A. Flint, from observations on Weston, some years since, reached conclusions supporting the doctrine of Liebig, that force—muscular, nervous, etc., results from the disintegration of the particular tissue in action. Flint and Pavy both found increase of urea during muscular exercise. The former maintained that this increase represented a force equal to the work performed; the latter maintains that this increase only accounts for the wear of muscular tissue. From a careful study of both series of observations, we think that Pavy is correct.—*Detroit Medical Journal.*

Bromide of Arsenic in the Treatment of Epilepsy.—Dr. Th. Clemens, of Frankfort-on-the Main, has employed bromide of arsenic for twenty years in the treatment of diseases of the nervous system, and especially of epilepsy, and claims that he has obtained astonishing results with it. He uses the liquor arsenic, bromat., and gives one or two drops in a glass of water once, or, if necessary, twice daily. These minute doses may be given for months and even years, without producing the usual unpleasant effects of a long continued arsenical course. All his cases of epilepsy have been markedly relieved and improved by this remedy, but in only two cases has it produced a complete cure. In many cases of incurable epilepsy, complicated with idiocy and deformities of the skull, the fits were reduced in number from twenty in the twenty-four hours, to four or even two, a result that has been obtained by no other treatment. In connection with the bromide of arsenic, an almost exclusively meat diet is advised. The patients should be as much as possible in the open air in the daytime, and their windows be kept open at night. Unlike bromide of potassium, this remedy does not re-

quire to be given in increasing doses, and instead of interfering with digestion, improves the nutrition and strength. Dr. Clemens has employed the following formula since 1859, and thinks that it ought to replace Fowler's solution, which is irrational in its composition and uncertain in its action. This solution becomes stronger with time; the chemical union of the bromide with the arseniate of potash becoming more and more perfect.—℞. Pulv. Arsenic, alb., Potassa. carb. c. tartar., āā dr. i.; coque cum aqua destil. lb. ss. ad solut. perfect.; adde, aq. evaporat. restituta, aquæ distil. oz. xij., dein adde brom. pur. dr. ij., refrigerat. stet per sufficient. temp. ad. decol., S. liq. arsenic. bromat.—*Allg. Med. Central Zeitung*, May 24th.

Local Treatment of Puerperal Fever.—Dr. Fritsch, of Halle, strongly recommends the injection of large quantities of a carbolic acid solution (2 or 3 per cent.), so as to thoroughly wash out the uterus and vagina, and to completely distend the latter. To this end he throws in two, and sometimes three litres, *i. e.*, from four to six pints, the temperature of the water being at 25° R. (89° Fahr.). The uterus, after a thorough cleansing out, need not be injected oftener than three times in the twenty-four hours; and after three or four days this need not be continued, but the cleansing and distension of the vagina must be repeated much more frequently and persisted in for a much longer time. Under this treatment not only are the local lesions soon ameliorated, but the febrile action, as indicated by the temperature curves, abates. Prof. Schroder, on the reading of the paper, mentioned that Dr. Hildebrandt employed for injecting the vagina a glass tube, about as thick as a finger, each patient being provided with her own, which is broken on her recovery.—*Detroit Med. Jour.*

The Academy of Medicine of Cincinnati.

At the closing exercises of the Academy of Medicine last night, Dr. Muscroft, Sr., made some remarks on the necessity of legislative enactments for the prevention of contagious diseases, which we reproduce:

As a scientific body, who has so much to do with the health of the community in which we live, it is our duty

energetically to take further steps in protecting it from the ravages of all contagious and epidemic diseases. It is true for most of them proper measures have been adopted, and much has been done for their suppression, most especially small-pox, and yet I am convinced more can be done in this direction; and, while I endorse the greatest tolerance and freedom of thought upon most subjects, yet I believe, when the health of a people depends upon sanitary and pretentive measures, such as all can not understand, that the majesty of the law should step in and enforce the required means.

First I allude to compulsory vaccination; for the entire suppression and stamping out of variola.

Now that bovine inoculation has come into such universal use, none need object to vaccination from the fear that some other bad habit of the body (*cachexia*), such as has been supposed to be carried by humanized lymph, can be brought against it as an objection. We have well authenticated instances where vaccination and re-vaccination has received the attention it deserves. Large communities have been protected to such a degree that not a single case of small-pox has occurred during an epidemic, while in not distant districts it has prevailed to at alarming extent, numbering its victims by hundreds where the same protective precaution had not been taken.

This and many other such examples have proved conclusively what can be accomplished in preventing great suffering and the loss of human life when stringent measures have been adopted.

We have, it is true, a well and efficiently organized Board of Health in this city, for the prevention of the spreading of such epidemics as have visited our country—and more especially in this section malignant cholera and small-pox. All has been done for the suppression of the first named that human intellect, constant vigilance, and prompt attention could devise; and should we again be visited by an epidemic of cholera, typhoid fever, yellow fever, or other kindred pestilences, again every effort would willingly be put forth to stay their destructive influence.

The community can readily understand the great importance of checking the progress of any of these plagues, and yet they are not aware we have a disease constantly among us that numbers its victims by tens of thousands,

and is doing more to sap the health of our citizens than all of these epidemics together, for while those visit us but seldom, we have the one of which I am about to speak constantly with us.

In the year 1874, Professor S. D. Gross, of Philadelphia, selected the subject of syphilis in its relations to national health, and its deteriorating influence upon the human race, for his inaugural address as President of the National Medical Association, and it was a masterly effort. This, too, is the subject to which I wish to call the especial attention of the Academy; not to elaborate it as he has done so ably, for this is not a fitting occasion if I had the capacity, but to the consideration of the importance it demands of this the oldest medical society in the city. It is now conceded by many syphilographers that when the syphilitic virus is once introduced into the human circulation it is never again eliminated from the system; although some persons may be inoculated with a sore that will soon heal by simple treatment and never again appear to cause further inconvenience, it may remain dormant for weeks, months, or years, and may die without its becoming developed, seemingly of inter-current diseases, but who can say with certainty that syphilis was not the latent factor in causing the malady ending in dissolution? Most persons, however, are sure to be affected by some of its varied constitutional forms, and there is not any tissue of the body that may not follow in the train of diseased action. I have recently seen it prove fatal in the case of a young man who had been previously robust in a few months from its first inoculation. And you who have had frequent opportunities to watch the progress of the malady I think will fully indorse all that has been said concerning its morbid effects.

It is not alone that the individual first inoculated suffers, but in almost every instance where they become parents they transmit it to their offspring in some of it many forms; and it is in these latter cases that it destroys the lives of so many children, causing their death in many cases before they are born, and sowing the seeds of disease which predispose others to all the debilitating and depressing influences when attacked with the many ailments common to the tender years of infantile life.

And who can say what dyscrasia syphilis is not the progenitor of?

What I wish to impress upon the members of this Society is, that we should exert every influence in our power to have measures adopted by the proper authorities for the prevention and spread of this disease. We should, as philanthropists and guardians of the public health, endeavor to educate the people to understand that they have constantly among them a scourge that destroys their lives and impoverishes their health to a greater extent than all other existing maladies, and when they are made conscious of this we will be better able to obtain their influence in having laws made for suppressing its ravages.

If they were aware the records of the disease show that of the forty millions of people of this country two millions are syphilitic, and that eighty out of one hundred children affected with the hereditary form of the disease die before they are five years of age, and that of the 3,625 patients admitted into the Cincinnati Hospital for the year ending December 31, 1876, 522, or 14.05 per cent. of these patients, were admitted and treated for venereal diseases alone, and this number does not include the cases treated for other diseases, who had at some time been the subject of acquired syphilis.

Other startling facts concerning the destructive effects of this protean disease could be related by the score, and when the public was presented with them I do not think it would withhold its aid in having laws enacted for its suppression.

Neither should medical men forget that we sometimes, in the exercise of our professional duties, become inoculated with this poison. Several physicians of eminence of our own city have died from this cause, and one of our most worthy members has been disabled for months past from the inoculation in the finger from an affected patient.

I wish to recommend the Society to use its influence to have, in addition to the Board of Health of our city, one also organized for the county, in addition to the one for the State in which we live, and that similar powers be delegated to it that the city Board controls, with the authority, likewise, to appoint medical officers for visiting houses of prostitution and examining the inmates at their own expense, or at the cost of the keeper of the house where they are domiciled, and that the medical officer be empowdered to isolate each affected person until

he decides that they have been perfectly cured of any localized contagious source of inoculation.

And it would also be eminently proper to isolate any male person who could be found similarly affected. A law ought also to be enacted by the legislature putting the latter under bonds, to prevent them from affecting others, alike in its action to one who is bound to keep the peace.

If nothing more could be done at present in accomplishing this result, a strong effort should be made to have such legislation enacted that would give medical staffs or officers of public hospitals, over which they have charge, the power to detain all patients by compulsion affected by any form of veneral disease, until they decide they would be in a perfectly safe condition and free from all infecting influence, before discharging them from their care.

This is one of the greatest difficulties the surgeons of the different hospitals of the city have to contend with, and most especially in the Cincinnati Hospital. Patients are often admitted in a horribly diseased state, having contagious sores to such an extent that they are driven from their homes as one smitten with the plague. This class of patients, generally women, are of depraved and vicious habits and disposition; the least controllable and most troublesome inmates to manage. Knowing they can leave the institution whenever they please, they resort to the hospital because they are so much diseased that it is impossible to ply their vocation on account of the excessive pain produced. Such patients will leave the house as soon as the local soreness is relieved, and no advice or persuasion can prevent them from immediately returning to their former mode of life. I have no doubt this class of women contaminate men by the dozen, and the men, in turn affect other women, but not to so great an extent, but, worst of all, frequently inoculating their own wives.

Vigilance of this kind would do much to prevent the spread of this the most destructive disease that affects the human race, and further, if the occupants of the houses of prostitution were often examined, and compelled to adopt the greatest cleanliness, and to use the proper precaution in the way of ablutions, this would also do much in effecting the same results.

In the city of Paris where these precautions are adopted, syphilis prevails to a less extent than in any of the other great cities of the world.

It might be argued that the enactment of such laws necessary to carry out this great and much needed reform would considerably increase our present over-burdened tax list. This, in my opinion, would not be so, but, on the contrary, the amount of money expended judiciously for the purpose of preventing the spread of disease, which requires such great outlay for its treatment, and cure for its victims (for such patients are the most expensive we have to treat), would be a source of economy to the public.

We are principally indebted, I believe, to the distinguished Dr. H. I. Bowditch, of Boston, Massachusetts, and the late Dr. T. M. Logan, of San Francisco, Calfornia, for the formation of State Medical Boards of Health, largely aided, however, by other distinguished gentlemen of the profession, who have done so much for the cause of Public Hygiene and State Medicine.

The following States have each Boards of Health, independent of their local boards, viz: Massachusetts, Louisiana, California, Virginia, Maryland, Georgia, Alabama, Wisconsin, and last our own Ohio. The law creating the State Board of Health of Ohio was passed by the present Legislature. It has five Trustees, who were appointed by the Governor.

I would like to give the names and residence of these gentlemen, but have not been able to obtain them, although I wrote to the Secretary of State for the information.

Book Notices.

THE PRACTITIONERS' HAND BOOK OF TREATMENT; OR PRINCIPLES OF THERAPEUTICS. BY J. MILNER FOTHERGILL, M. D., F. R. C. P., London, etc. 8 vo. pp. 575. Philadelphia: Henry C. Lea. Cincinnati: R. Clarke & Co. 1877.

As explained by the author, this work is not an imperfect practice of medicine, but an attempt of original character to explain the *rationale* of our therapeutic mea-

sures. First, the physiology of each subject is given, then the pathology is reviewed, so far as they bear upon the treatment; next the action of remedies is examined, after which their practical application in concrete prescriptions is furnished.

There are some twenty-four chapters in which the physiology of the various organs and their functions are considered, the pathological changes brought about by disease discussed, and the principles involved in the treatment explained. In brief, these chapters teach the science of medicine, and to the man of science the work will be held in the highest esteem.

Our practices, many of which are most excellent treatises, are, as their names imply, largely an explanation of the art of healing, in which, after a statement of the morbid conditions found in the various diseases—the anatomical characters—is described what drugs and combination of drugs should be employed in effecting a cure, no analysis of the therapeutic relations subsisting between the remedy and the pathological indications being given.

We are sure that all physicians will feel under obligations to Dr. Fothergill for his attempt to construct a science of medicine—a science by which can be understood the "whys and wherefores," the principles involved in curing disease. Students of medicine by all means should provide themselves with the work and "con" it daily. They will obtain from it an insight into the principles of medicine, which will be difficult to obtain from any other source. But it is far from being a mere theoretical work. It contains, with the explananation of their action, very many most valuable prescriptions.

THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION —Twenty-seventh annual meeting, 1876.

The last meeting of the American Medical Association, the proceedings of which are contained in this volume, was held in Philadelphia on the 6th, 7th, 8th, 9th days of last June, Dr. W. R. Bolding, of Tennessee, the retiring President, calling the Association to order.

The volume before us of 719 pages, octavo, contains, besides the minutes of the Association as a whole, the address of the retiring President, of the incoming one, Dr. Marion Sims, the minutes of the various sections, and the

papers read in the various sections, many of which are of great value.

The same credit as heretofore belongs to the permanent Secretary, Wm. B. Atkinson, M. D., for the praiseworthy manner in which the book is gotten up.

A Series of American Clinical Lectures. Edited by E. C. Seguin, M. D., Volume 11, January–December, 1876. New York: G. P. Putnam's Sons. 8 vo. pp. 340.

This is the bound volume for 1876, of the Clinical Lectures, edited by Dr. E. C. Seguin, monthly numbers of which, at various times, we have noticed in the News. As we have a number of times stated, G. P. Putnam's Sons, of New York, issue each month in pamphlet form, at a yearly subscription price, a lecture on a subject in some department of medicine, by some gentleman of recognized standing in the profession. The twelve lectures in the volume are by Drs. Hammond, Noyes, Seguin, Jewell, Weir, Leffert, etc., etc.

A Course of Practical Histology; being an Introduction to the use of the Microscope. By Edward Alfred Schafer, Professor in University College, London. With illustrations on wood. 12 mo. pp. 297. Philadelphia: Henry C. Lea. Cincinnati: R. Clarke & Co. 1877.

The purpose of this work is to afford to those engaged in the practical study of histology, plain and intelligible directions for the suitable preparation of the animal tissues, with the object either of immediate study, or of their preservation as specimens for future reference. The methods recommended have all been tested by experience.

The student of histology, in daily use of the microscope, will esteem this work very highly. Only a page or so is devoted to the description of microscopic apparatus—it being presumed that the student possesses the necessary amount of manipulative knowledge and skill—but the study of histology is at once entered upon. The first subject considered is the blood, the next the epithelial tissues, the next the connective tissues, etc., etc. The descriptions are brief and plain and easily comprehended.

The student will have no trouble in following along from chapter to chapter.

What especially recommends the work is that the author discards all expensive apparatus. With a microscope that can now be purchased for $50, a sharp razor, some glass slides and covers, two or three watch glasses, a few test tubes, a pipette, and some chemicals; the student is prepared to enter deeply into the study of histology, and see every thing as satisfactorily as if he had two or three thousand dollars worth of apparatus.

General Index to the New York Medical Journal, from April, 1865, to June, 1876 (23 volumes). By James B. Hunter, M. D. New York: D. Appleton & Co. Cincinnati: R. Clarke & Co. 8 vo. pp. 144.

This very complete index of the New York Medical Journal will be found highly valuable to all those desiring to search its contents for information.

In Memoriam.

Forest A. Dille, a student in the Cincinnati College of Medicine and Surgery, died of typhoid fever, in the Cincinnati Hospital, on the 17th of December, 1876. On information of his death, the students of the college adopted the following resolutions:

Whereas, It has pleased the Great Ruler of human events in his mysterious providence to remove from our midst, our class-mate, Forest A. Dille, who, by his studious habits and unassuming manners, won the esteem of all who knew him; therefore be it

Resolved, That while we humbly bow to the will of Him who doeth all things well, we cannot but regret that one so bright and promising should be called from earth at the very opening of a life that gave promise of so much usefulness.

Resolved, That we extend to the relatives and friends of the deceased our heartfelt sympathies in the loss of one so genial and kind; who, had he been spared, we believe, would have been an ornament to society, and an honor to the profession; and be it further

Resolved, That a copy of these resolutions be forwarded

to the parents of the deceased; a copy be placed in the archives of the college in the name of the class of 1876 and 1877; a copy be sent to the papers published in the county of which the deceased was a resident, and a copy be submitted to the Cincinnati *Enquirer*, Cincinnati *Commercial*, Cincinnati *Gazette*, and the Cincinnati MEDICAL NEWS for publication.

R. C. FREEMAN,
FOSTER E. WILSON,
W. A. SMITH,
C. W. FRY,
C. P. KINNEY,
J. R. SWIGART,
Committee.

Editorial.

THE COLLEGE OF PHARMACY.—The Sixth Annual Commencement Exercises of the Cincinnati College of Pharmacy was held at College Hall, Wednesday evening, March 21. It was a brilliant audience, composed mostly of ladies, and the small hall was densely packed, nearly all the standing room being occupied. The stage was handsomely decorated with flowers and ferns, as were the faculty, the graduating class, and the Board of Trustees —barring the ferns. Music was furnished by the Germania Band.

The exercises were opened with prayer by Rev. J. Murray Bailey, after which the President of the Board of Trustees, Mr. R. M. Byrnes, conferred the degrees. Before presenting the diplomas Mr. Byrnes said:

"LADIES AND GENTLEMEN: Before conferring the degrees, it may not be out of place to say a word about the past history, present condition, and future prospect of the Cincinnati College of Pharmacy.

"Its charter was granted in 1850, but it was not until six years ago that it was organized as a teaching college, with an able corps of Professors. From that date its period of real usefulness may be said to have commenced.

"Beginning with the winter of 1871–2, and ending with the season of 1876–7, six full courses of lectures on the various branches pertaining to pharmacy have been given, together with laboratory practice and instructions.

"At the close of the first session there were no candidates for graduation. At the end of second session ten graduates; third session, eleven graduates; fourth session, seventeen graduates; fifth session, fourteen graduates; sixth session (just closed), thirteen candidates, having fulfilled all the requirements, and having passed the necessary examinations, are present to-night to receive the degree of graduates in pharmacy.

"The requirements for graduation are a good moral character, having attained the age of twenty-one years, attended two full courses of lectures in a regular college of pharmacy, the last of which shall be in this college, and have had an experience of four years in the retail drug business. They shall pass a written examination on questions pertaining to pharmacy and its collateral sciences. Such questions to be submitted by the professors and a committee from the Board of Trustees.

"Also present a well written thesis on some subject pertaining to pharmacy.

"We congratulate ourselves on the fact that there are not more than two other colleges of pharmacy in the United States attended by more students than this one, and none require a more thorough course for graduation. The number of attendants at the present has been 89. Through the generosity and forethought of last year a nucleus was formed for a building fund, which has been materially increased during the past year."

The President then presented diplomas to the following gentlemen, who stood in front of the stage during the ceremony:

Chas. A. Doerr, Cincinnati, O., "Glycerinum."

Gustavus A. Fieber, Cincinnati, O., "Antimony and its Officinal Preparations."

Wm. Feemster, Cincinnati, O., "Eucalyptus Globulus."

J. H. Horsnyder, Cincinnati, O., "Chlorine."

Donn. W. Light, Covington, Ky., "Bismuth."

John H. Linnemann, Cincinnati, O., "Ergot and its Constituents and Preparations."

John C. Otis, Cincinnati, O., "Essential Oils."

Chilton S. Porter, Cincinnati, O., "The Citrates."

Louis Reinert, Jr., Ripley, O., "Silver and its Salts."

Frank Edward Schmuck, Louisville, Ky., "Phosphorus and its Officinal Preparations."

Chas. Sofge, Cincinnati, O., "Copper and its Salts."
R. C. Wangler, Cincinnati, O., "Camphor."
Herman Wilfert, Cincinnati, O., "Potassium and its Salts."

The address in behalf of the Trustees was made by Dr. Thad. A. Reamy, and was a highly interesting history of pharmacy, and of the good scientific researches in that direction had done to the human family. The address was devoid of technicalities, and touched the popular heart of the meeting. It was eloquently delivered and elicited much applause.

The most pleasant feature of the evening was the award of prizes for special excellence in the various departments taught in the college. The first prize, a gold medal, presented by Prof. E. S. Wayne, for efficiency in Botany and Materia Medica, was awarded to John H. Linnemann. The second prize, a set of blow-pipe instruments, presented by Prof. J. F. Judge, for efficiency in Chemistry, was awarded to Chilton S. Porter. The third prize, pair of prescription balance scales, presented by Prof. A. Fennel, for the best examination in pharmacy, was awarded to Gustavus A. Fieber. The fourth prize, a good medal, presented by Louis Schwab, President, on behalf of the Alumni Association, for general excellence in all departments, was awarded to Charles A. Doerr. As the young gentlemen advanced to the stage to blushingly receive their reward, they were loudly applauded.

Chilton S. Porter, of the graduating class, then advanced and presented to the Trustees, for the use of the College Library, four volumes of valuable works on the subject of Chemistry, Botany and Pharmacy. He made a neat speech in presenting them, and was responded to by the President, who accepted the volumes on behalf of the Trustees.

The address in behalf of the faculty was delivered by Prof. J. F. Judge, and abounded in good advice to the young graduates, regarding their moral, social and business relations, and their duties and responsibilities on behalf of the Trustees.

The valedictory was delivered by Mr. John C. Otis, of the graduating class. The Rev. Mr. Bailey pronounced the benediction, and the audience was dismissed highly pleased with the evening's entertainment.

The alumni, the new graduates, the faculty, the Trustees

and a few invited guests, then repaired to the Gibson House to enjoy the annual banquet.

THE BANQUET.

The large dining room of the Gibson House presented a tempting sight to the 150 hungry pharmacists and their guests, as they filed in and saw the elegantly ornamented tables, arranged in horse shoe form, extending from one end to the other, loaded down with the choicest viands that would tickle the palate or stick to the ribs. The central ornamental piece was a pharmaceutic pyramid cake, surmounted by a gilt sugar mortar and pestle. Behind this sat the President of the Alumni Association, Mr. Louis Schwab, and ranged on either side of him were the faculty, the trustees, and the respondents to the toasts. The menu was everything that could be desired, and consisted of seven courses. After an hour consumed in its demolition, wine was served and the toasts were announced by President Schwab. The responses were all good, especially those of Prof. Wayne, Hon. S. F. Hunt, E. Miner Griswold, of the *Saturday Night*, and Dr. Reamy, and elicited much applause. Dr. P. F. Maley, who was suddenly called upon to take the place of Prof. Roberts Bartholow in response to the "Medical Profession," acquitted himself in a remarkably fine style for one so young and unaccustomed to public speaking.

American Medical Association.—The Twenty-Eighth Annual Session will be held in the city of Chicago, Ills., on Tuesday, June 5, 1877, in Farewell Hall, at 11 A. M.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy of the United States."

Secretaries of Medical Societies, as above designated, are earnestly requested to forward, at *once*, lists of their delegates. Will you kindly send to the undersigned a list of your members with their residences, in order that a correct record may be made of all who are in affiliation with this body?

"Papers appropriate to the several Sections, in order to secure consideration and action, must be sent to the Secretary of the appropriate Section at least one month

before the meeting which is to act upon them. It shall be the duty of the Secretary to whom such papers are sent, to examine them with care, and, with the advice of the Chairman of the Section, to determine the time and order of their presentation, and give due notice of the same. * * *"

WM. B. ATKINSON, M. D., *Permanent Secretary*,
1400 Pine St., Philadelphia.

APPOINTMENTS.—Dr. C. L. A. Reed and Dr. Wm. A. Rothacker have been appointed respectively to the Chairs of General Pathology and Physiology in the Cincinnati College of Medicine and Surgery. These gentlemen are graduates of the college, and have become noted for the proficiency to which they have attained in the branches of which, by the action of the faculty, they have become teachers. We wish them success in the honors conferred upon them.

ECLECTIC MAGAZINE.—The literary contents of the number are as follows: "Geographical and Scientific Results of the English Arctic Expedition;" "A New Work on Russia," being a review and synopsis of Mr. Wallace's excellent book; a fascinating biographical sketch of "Edmund Kean;" "Great Storms;" "Recent Music and Musicians," with special reference to Mendelssohn; a scientific examination of "Mesmerism, Odylism, Table-Turning and Spiritualism," by Dr. W. B. Carpenter; "The Poet in the City;" "Inside the House of Commons;" "Hæmony;" "Other Worlds and Other Universes," by Richard A. Proctor, B. A., F. R. S.; "Wits and Witicisms," and "The Jews in Europe." In addition to all these good things, there are three chapters of Mrs. Oliphant's interesting story of "Young Musgrave," and copious editorial notes on home and foreign literature, science, and art.

Published by E. R. PELTON, 25 Bond Street, New York. Terms, $5 per year; Single number, 45 cents.

WM. S. MERREL & CO.—The attention of our readers is called to the circular of this house bound in this number of the MEDICAL NEWS. This is one of the very oldest drug firms in the west. Their preparations have a reputation equal to the very best.

THE
CINCINNATI MEDICAL NEWS.

VOL. X. No. 113. Old Series. | MAY, 1877. | VOL. VI. No. 5. New Series.

Original Contributions.

The Nature and Purpose of Fever.—No. 2.

BY G. W. KIBBEE, M. D., New York City, April 9th, 1877.

To the Editors and readers of the Cincinnati MEDICAL NEWS.—In a former issue of this journal I made some remarks on the Nature and Purpose of Fever, called out by the reading of a paper on the subject by Dr. McElroy.

In an old sacred song occurs the line, "God hates the sin, and yet the sinner loves." This sentiment must have been suggested to the poet by the fact in human experience that it is a most trying ordeal for our moral nature to disassociate a supposed error, which we strongly condemn, from the propagator of it, to whom we should accord as much earnestness in the pursuit of truth as we feel conscious of in ourselves. For this reason many discussions on all subjects, though begun in the interest and for the investigation of truth, too often descend into personalities which distract the attention of the disputants and their readers from the subject of discussion. Therefore, while I attempt to show the inconsistency and error of Dr. McElroy's views regarding life, fever, and disease, I would not attack that gentleman's judgment or motives. I only drive after what I consider the errors which he would teach the profession.

All we *see* in the universe around us is matter. We know, therefore, that matter exists, because we see it. We know that certain properties inhere in matter, and we see matter in motion, and ask the cause of the motion, and Dr. McElroy tells us that all motion of material substances, organic or inorganic, is caused by *force*, in its different modes, and that all its modes are resolvable into

the sun's rays; but he does not inform us what a ray of the sun *is*, nor how it came to possess force, which merges into so many modes of motion. Yet he tells us what it does, in its different modes, as light, heat, gravity, chemical affinity, magnetism, electricity, etc.; it causes all *life* on our globe, animal and vegetable; and still he says that the paper to which I called attention is but a part of a series of papers on a science of life from a *purely physical stand-point!* What *does* he mean by a "purely physical stand-point?" If by the term physical he means matter, and the forces he has named, taking out the life force from the etc., then it would be a misnomer to call him a materialist, as he seems to suppose himself to be. He says there is no such thing as a life *force*, but that the life which is manifested in the millions of organic forms on the earth is not a force of itself, but the result of the ordinary forces of Nature around us. How does he *know* that the life force is not one of the ordinary forces around us, even the head-center force that makes use of all the other forces, or modes of force, to carry on its purposes in bringing into existence, and sustaining the almost infinite variety of organic structures which we see on this planet. If it is "dogmatic" to claim that there is a life principle, a force that is superior to all other forces, or modes of force, is it not equally so to assert that there is no such thing as a life force, but that the life that is manifested is nothing but the result of the ordinary forces around us, principally in the chemical mode of action?

The Dr. admits the existence of chemical force, which he cannot see, and knows nothing of, but through certain motions of dead matter, the cause of which motions he names chemical affinity, and yet denies the existence of a life force as the prime cause of all organization. The leading scientists of this generation, in dealing with the facts of matter and force, have safely trodden over ground that a few of their followers afar off have mired in. No one will deny that the researches of Darwin in biology entitle him to a place in the first rank of observers and thinkers. In the closing chapter of his work on the descent (ascent) of man, 2d vol., p. 378, he says: "I am aware that the conclusions arrived at in this work will be denounced by some as highly irreligious; but he who thus denounces them is bound to show why it is more irreligious to explain the origin of man as a distinct

species by descent from some lower form, through the laws of variation and natural selection, than to explain the birth of the individual through the ordinary laws of reproduction. The birth both of the species and of the individual are equally parts of that grand sequence of events, which our minds refuse to accept as the result of *blind chance*. The understanding revolts at such a conclusion, whether or not we are able to believe that every slight variation of structure, the union of each pair in marriage, the dissemination of each seed, and other such events, have all been *ordained* for some special purpose." This is the position held by the great Darwin, and yet his follower, who claims no distinction for himself except through the fact that for the last eight or ten years he has been writing a series of papers to prove that "life on our globe, animal and vegetable, is the resultant of the ordinary forces of nature around us," says, "matter, in virtue of *chemical complexity*, stores up force, and stored up force is a demonstrablé fact, is all that is needful to account for any disturbance of the processes of nutrition and waste of living tissue, which must occur before anything can be known of so-called disease."

It seems, then, that the Dr. would resolve the whole phenomena of life, of health, and of disturbance of the processes of nutrition and waste of living tissue (a very good definition of disease) into chemical complexity! From the use the Dr. makes of the word complexity, in another place, I infer that the meaning it conveys to his mind is *confusion*. But does it not strike the Doctor, as it must certainly some of his readers, that the grand order in the production and sustenance of living, moving, thinking, organized forms, is rather remarkable as a result of "chemical complexity," "blind chance?" In my former paper I asked, not "triumphantly" I think, if any one could adduce the slightest evidence that the presence of malaria, or of infectious seed poisons, causes the least change in blood or tissue until after vital resistance is set up against it. The Dr. disposes of that question in a summary manner, by saying that malaria is altogether a thing of "inference," of "deduction;" and therefore denies its existence; he has not *seen* it, neither has he been able to discover the existence of the floating seeds, not of "diseased," but of the minute organisms, which are developed from those seeds under the incubating power

of a degree of vital heat that is induced by vital resistance to them. They have never been *seen*, therefore they cannot exist. But he has never *seen* a single one of the forces in Nature, and yet he has been "toiling" for the last eight or ten years to prove, among other things of like import, that the *heat* of living bodies "is one of the results of chemical action, and always the product of decay of structure." * * * He seems to have no doubt about the existence of chemical force, but accepts the fact on the very same evidence that he ignores in regard to malaria, and the seed poisons of Pasteur, Tyndall, and other great scientists, viz., inference, deduction, or assumption. Dr. McElroy sees particles of inorganized matter move under the influence of a force that he is satisfied is not of gravity, or of vitality, and he calls it chemical force. He may bring a microscope to bear on the moving mass that will magnify a thousand quintillions of diameters, and I premise he would not be able to *see* the force that produced the disintegration. The Dr. does not profess to be able to see the force that circulates the blood, and causes each organ of the body to perform its allotted function, but he "infers" that it is chemical force, because he knows that the carbon in the blood and the oxygen in the atmosphere come into pretty close contact in the lungs, and a product of combustion is formed about the same as is the case in the open air under favorable circumstances. But suppose a man in full health, chemical force doing its perfect work of removing the worn out tissues and putting new materials from the blood into their places, should receive an excessive shock of electricity, or swallow an over-dose of hydrocyanic acid, and instant death result, what about the chemical action then, Doctor? Does it cease? No; that is the time it commences. On the instant that *life* leaves an organic structure, or any part of it, that moment chemistry takes possession. Is it dogmatism, then, to affirm that every motion of an organized living body is caused by the life force? It seems to me that the dogmatism is in asserting the contrary. The phenomena attending the integration of particles of matter into organized forms cannot be caused by the same force whose whole office in the inanimate world is to disintegrate, to destroy. The two forces are directly antagonistic—one builds up structures, the other breaks them down. One force tends to the integrity of an organ-

ism, the other to its destruction. Place a human body suddenly bereft of life, in an atmosphere at the temperature of 70°, and how much heat will be evolved by chemical action? Just as much atmosphere surrounds the body, and there is plenty of carbon in the blood, but the *life* is gone, vital action has ceased, and chemical force and the lower order of organized beings take possession. Vital force, then, integrates, builds up, sustains; chemical force disinregrates, tears down, destroys. That process in the change of tissue which removes worn out particles, is just as much vital as is the placing of new particles into the tissue. When chemical force supervenes, all are broken down and destroyed together.

Dr. McElroy pays me the compliment to say that I seem to have the power to work and to study, and thinks that if I "stick to the facts in Nature," I may be able to understand fevers better, and in due time throw a little light on the subject, so as to instruct others. I have based my study of fever for thirty years on the almost universally recognized fact that the cause of all motion, organic or mental, in living structures, is *vital force*. I have even been so silly as to ascribe intelligence to that force, and that of an infinite degree. In doing this I have only adopted the commonly accepted modes of reasoning. There can be no effect without an adequate cause, therefore the effect can never exceed the cause. The cause and the effect must always bear the relation of likeness to each other, giving us ground for the expression that like begets like. Two great central facts most impress our consciousness; matter and force. We *see* matter in motion, and we *infer* force, yet we are as sure that force exists as we are that matter exists. The greatest results on this planet that have any interest to us as human beings are occasioned by the life force, and that intelligent life force must bound, connect, and equal all its results. Nothing in Nature becomes organized without a vitalized seed; and it would be stultifying our reason to deny that the seed contained in embryo every manifestation of life and thought that the furure organism could develop. Admitting that man came from the "dust of the ground," "protoplasm," through an infinite number of upward steps, on the principle of gradual improvemeut, natural and sexual selection and better environment, which I heartly do, I can see no reason to dissent from the conclusion of the

leading scientists and most profound thinkers of the age that there is a vital principle, an intelligent life force, pervading the illimitable universe, and manifesting itself in an infinite variety of ways through the organisms it builds up on the earth, chief of which is the noble organic structure of man. The impetus to a reaction from the religious superstitions of the past, given by the scientific investigations of this age, has driven a certain class of minds upon the shoal of "complexity," where they attempt to account for all the phenomena of organic and mental life "from a purely physical stand-point," and the tendencies of such errors are no less fatal to a consistent system of treating man's sick moral nature, than they are to an intelligent treatment of his sick body, for the same vital force, under different manifestations, is treated in both, one mode being organic, the other mental. We do not then treat a man's body when we would relieve him from suffering, but make use of such means as produce an effect on the life principle, the vital force. Cold or hot water, alcohol, quinine, or veratrum viride, have no power to make a vital impression on the body of the dead man, but they do impress the vitality of a living one, therefore there can be no such thing as producing a *physical* impression with the therapeutic means. The whole domain of medicine proper is to deal with vitality. When we come to the province of surgery, we deal with the physical structure direct, but never forget the animating principle. The Dr. dissents from my view that the first and absolutely essential condition of life and health in man, and all animals known as 'hot-blooded,' is heat at 98°. He says I "certainly mistake, because life has many conditions besides temperature;" but he does not attempt to prove that the *first* condition is not heat at 98°. He pounces upon a trifling inaccuracy in regard to the heat of animals with seeming avidity. I had *heard* all about the heat of the lower animals, but did not regard the accounts as strictly accurate. It is quite probable, that if man were put in great fear for his life, causing his heart to beat with double its usual force and frequency for a few minutes, and then were to have a thermometer thrust into his heart, the mercury would indicate a degree of heat far above what we usually see it in health and at rest when applied under the tongue. The experiments on animals, it is reasonable to conclude, were under similar circum-

stances. If chemical action keeps up the heat of the marmot, could the Dr. explain on what principle it varies the standard of winter heat from that of summer? I made the statement that the heat of animal bodies is called vital heat, because it is produced by vital action in the organism. The Dr. thinks I should have stated that it does not differ in any respect from heat produced *outside* of living beings, by chemical or mechanical means. That may, or may not be true, but in either case it would be no good reason why the heat that is produced *inside* of a living body should not be called vital. The Dr. says, "excessive heat is one of the results of chemical action in living bodies, and *always* the product of decay of structure." *I* said excessive heat is the result of exalted vital action, and proved it by citing various instances; and Dr. McElroy can prove it in his own person any day by taking a sharp run up hill for a few minutes. He will find that he can very quickly raise the temperature of his blood three or four degrees. If he will count the pulsations of his heart, and the respirations of his lungs, he will find they have doubled their normal action. How much decay of structure could take place, while the Dr., by running up hill in a hot summer day, should cause his heart to beat, and lungs to respire, so as to raise his vital heat to 106°? None worth mentioning, I think; for the process would be wholly vital. But suppose the race taken was on a cold winter day. The beating of the heart and the respiration of the lungs would be as fast, and the evolution of heat through the increased friction, and oxygenation of the blood would be as rapid, but the cold air would remove it, and the Dr. would not feel it necessary to "slow his motion so soon." He then would be in a bad condition to accept the truth of my statement, that cold antagonizes heat, and it might reach his understanding in that way that bodily heat is the result of vital action. He says, "excessive heat is always the product of decay of structure, or the descent of the materials of structure to simpler chemical conditions, of which every function of a living body is only an incident."

Why, it is not in the power of any man living to show that chemistry has the slighest imaginable amount to do with the function of a single organ of the living body. The Dr. simply asserts it. He brings no proof of his assertion except the "inference" that chemical force causes

all these wonderful processes *in* the living organism, because he sees the effects of that force *out* of it. Does chemical force digest the food? How *can* the Dr. fail to see that it has nothing to do with digestion? Let the vital force be suddenly called from its work in a full stomach, and let chemical force undertake to do the digestion. Such a piece of work as it would make of it those understand who have heard bad news and shortly afterward vomited their dinner in a putrid condition. How it is that the Dr. reasons himself into the "inference" that "every function of a living body is only an incident of the descent of the materials of its structure into simpler chemical conditions," amazes one with my powers of apprehension. I think the fundamental error with the Dr. is that he has put the cart before the horse. He assumes that matter evolves force, whereas it might involve more satisfactory results, in our profession of medicine at least, to assume that force induces motion in matter. Could not the Dr. possibly train his eyes to see the "cold finger of science writing this fact on the blackboard?" Could he not harmonize it with the axiom that "for every dynamic result there must be changes of matter?"

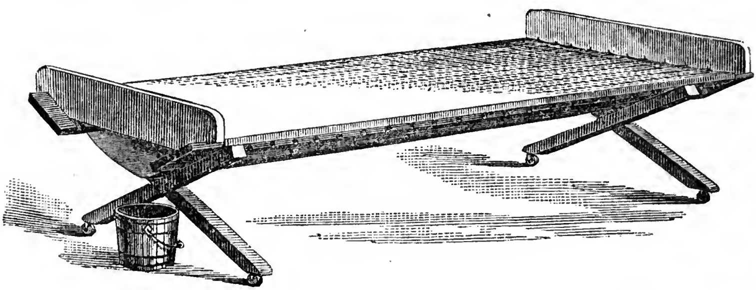
I read with almost breathless interest the address of the honored Rabbi Wise to the graduating class of the Cincinnati College of Medicine and Surgery, and could not refrain from contrasting his advice with that which Dr. McElroy would give them from his "purely physical stand-point." Instead of admonishing them that "the physician at the bedside of his patient should never forget for a moment that man is an intellectual being, and no "organic machine," no "self-sustaining antomaton," he would say to them, When you come to the bedside of your patient, bring to bear in your judgment of the case "nothing" more nor less than a science of life and therapeutics from a purely physical stand-point; regarding all life on our globe, animal and vegetable, as the resultant of the ordinary forces of Nature around you." Do not permit the "dogmatic assumption" that there is any such factor as vital force to be considered in the case, but remember the great results which your Professor of Chemistry produced in his alembic, and by the process of "inductive" reasoning, go to work on this human alembic, this automatic machine, run by chemical force, and demonstrate the "legitimate" induction that matter, in virtue

of chemical complexity, stores up force, and that that stored up force is all that is needful to account for any disturbance of the processes of nutrition and waste of living tissue, which must occur before anything can be known of so-called disease." "Do not then, for a moment, harbor the inference that mental and organic *life* have any thing to do in the organism, except as the resultant of the ordinary forces in Nature around you. What you have to do is to regulate, not vital action, not vital heat, but chemical affinities in the human alembic before you." Such, to be consistent with his views of life, health and disease, would be his advice to those young men just going out into the world to take upon themselves the most vitally responsible relation that one intelligent being can bear to another, that of physician to patient. In my paper published in the Feb. No. of this journal, I summed up with a number of facts and axioms that the Dr. has not brought forward the shadow of an argument to disprove, but simply *asserted* that all my conclusions, inductions, were erroneous, because my premise, vital force, is a myth, the phenomena which I mistakenly ascribe to vital force being produced by chemical action. But the Dr. believes in inductive reasoning. Is this one of its processes? All animal bodies manifest two peculiar modes of force, organic and mental, therefore that force must be an entity which proceeds from an unbounded source. Dr. McElroy says, in effect, "matter, in virtue of chemical complexity, manifests all the phenomena of life on this globe." "We pays for our stand-point, and we takes our choice" of conclusions.

The Dr. could not have noticed the 3d and 4th propositions in my arrangement of physiological facts, which are, Health is undisturbed vital action; and Disease is disturbed vital action; for he says, "Dr. K. looks upon disease as a thing of the varmint nature to be hounded or otherwise driven out of the bodies of sick people. That has been the trouble with us of the medical profession too long; we have hounded disease, the disturbed vital force, under the impression that it was an enemy, and have used means that were inimical to life because we knew no better way than that to dispose of the excessive *heat* which it has always been known was in some way connected with all febrile diseases and constituted the danger." I *have* had such success in the use of the cooling

treatment, that I come before my medical brethren with a confidence that is begotten by absolute certainty, and say to them that no ordinarily healthy person can die of fever, no matter what the exciting cause, *if the vital heat is kept at the normal standard from the beginning.*

I do not say that no person can die of *disease* while the heat is kept at the normal standard, as disease is disturbed vital action, and the vital action may be so disturbed as to be destroyed instantaneously; but fever is both disturbed vital action and excessive heat, and if the excess of heat is removed as fast as it rises from the increased motion of the organism in resistance to whatever is inimical, all the morbid results which are traceable to excessive vital heat are avoided. I have made use of many expedients for keeping the heat of fever patients uniformly at the normal standard, and have found nothing satisfactory but the pouring of tepid or moderately cool water through a thickly folded sheet or bandage wrapped around the body of the patient from the pelvis to the axillas. To prevent the inconvenience of wetting the bed and bedding, I constructed a cot, the cut of which is here



shown, with two bottoms; one, of a strong springy cotton net-work, which makes an easy bed for the patient, and the lower one of rubber-cloth, which conveys the water that is poured into a vessel at the foot. The sum of this whole subject can be expressed in a few words. Those who talk about physical science, a method by which they account for all the manifestations of organic and mental life, from a purely physical stand-point, and deny that there is an all pervading life force, just because certain *conditions* are necessary to the development of organic and mental life, stultify their own reason; first, in the fact that all forces, or modes of force, whose effects they see, or feel,

are never manifested excepting under certain conditions; therefore, on the same basis of reasoning, they must deny the existence of all the modes of force they class with physical Nature. Second, they stultify their reason in the fact that they thus ignore the very basis of all reasoning; the proposition that there can be no effect upon matter, or change in the relations of its particles, without an adequate cause, or force, therefore, that development of matter which manifests organic, intellectual, and moral life force, comes from an infinite source of the same character of force; as the product must bear likeness to its cause, and the whole must be greater than the individualized parts at any one time, when those individualized parts are constantly increasing in numbers and force. Having settled it as a fact that there *is* a life force, a vital principle, the theory of fever and the method of its treatment, as given in the February No. of this journal, become both consistent and true.

Excessive Development.

By S. L. Botts, M. D., Dry Fork, Ky.

Mr. C., aged 42 years, his wife aged 32 years; were married in Dec., 1862. In Nov., 1853, their first child, a boy, was born; lived three years, and died with croup after a few hours illness. His weight was about *ninety pounds*. In Sept., 1868, their second child, a girl, was born at full term, but died immediately after birth. In Aug., 1870, Mrs. C. aborted at the end of the third month of gestation. In Aug., 1871, her third child, a boy, was born, and lived five years three and one half months. His weight at death was *two hundred pounds*. He also died of croup of about twenty-four hours duration. In Nov., 1873, she gave birth to another child, a boy, at full term, which died immediately after birth. In Jan., 1875, her fifth and last child, a girl, was born. It is the only living child she now has, and weighs about seventy-five pounds. All her children at birth were about the usual size. The second and fourth children breathed a few minutes after birth. The others seemed to be in good health up to the day of their death. They ate heartily, —their diet consisting largely of sugar—had a natural color, and evinced more than ordinary intelligence.

The weight of the father is one hundred and thirty-five pounds. He is a farmer by occupation, a temperate man, and has always enjoyed good health. The mother weighs one hundred and seven pounds. Her health was good until she had been married about three years, since which time she has been troubled with uterine diseases, from which her general health has suffered more or less. She came under my observation last year, and had then ulceration of the cervix, and retroversion of the uterus, and said that she had "falling of the womb" six or seven years ago. She has generally menstruated regularly.

When pregnant with her second and fourth children, her health was very bad, being confined to her bed for several months, and there was no enlargement of the mammary glands. She states she has had one peculiarity in all her pregnancies except one, the first, to-wit, deafness in her right ear when in the erect position, or when lying on her left side. This deafness is much more marked in warm weather.

An aunt of Mrs. C. had one child that weighed over one hundred pounds when it died at five years old. This is the only case of excessive development in the C. family except those I have described. The parents in both these cases married cousins.

This is the history of the cases as far as I could obtain it from the parents, and I give it hoping it may prove of some interest to the readers of the MEDICAL NEWS, and that, through it, we may elicit the opinions of older members of the profession, both as to the cause of such excessive development, and the best means, if any, of reducing the size or checking the rapid growth of such children.

Differential Diagnosis between Opacities of the Cornea and Cataract.

By W. R. AMICK, M. D., Cincinnati, O.

In the few remarks that we shall offer upon this subject, we do not propose to enter into the prognosis and treatment of either opacity of the cornea or cataract, but simply to give a few points that will aid in distinguishing between the two diseases.

It is not an unfrequent occurrence for a patient with opacity of the cornea to be sent by his physician to an oculist, to be operated upon for cataract.

A mistake of this kind reflects upon the physican, and has a tendency to make the patient think that he does not fully comprehend the nature of the disease. It may be due to negligence on the part of the physician in not making a thorough examination.

In order to make a correct differential diagnosis, it is necessary first to understand the anatomy. The cornea is the transparent convexo-concave substance that forms the anterior sixth of the external tunic of the eye-ball. Just posterior to the cornea is the anterior chamber, which varies in depth in different individuals, or in the same person in certain diseases of the eye. The iris is the screen or diaphragm that regulates the amount of light admitted to the retina. It is situated just in front of the lens, and forms the division between the anterior and posterior chambers of the aqueous humor. Its free margin floats in the aqueous humor. When in a normal or contracted condition, that portion of the posterior surface near the pupillary margin rests upon the anterior capsule of the lens. In the center of the iris is an opening called the pupil, which is contracted and enlarged by muscular action. Posterior to the iris is the crystalline lens, surrounded by its envelope or capsule. This envelope is divided into two parts. That portion in front is called the anterior capsule, while that part of it that lies in the lenticular fossa of the vitreous humor is called the posterior capsule.

Now, from the anatomy, it is not only evident that the cornea is in front of the lens, but that there is an appreciable space existing between them in a normal condition. We also see that the iris is in front of the lens, so that in order to see the latter we must look through the opening or pupil in the former.

1. Opacity of the cornea is in front of the iris.	1. Cataract or opacity of the lens is behind the iris.
2. Opacity of the cornea has a whitish or grayish white appearance, and is seen in front of the pupil.	2. Cataract has a whitish or grayish white appearance, and is seen through the pupil.
3. In oblique illumination,	3. In oblique illumination

opacity of the cornea is seen in front of the anterior chamber.	cataract is seen posterior to the anterior chamber.
4. In opacity of the cornea, the anterior surface of the iris, its pupillary and area of pupil are more or less hidden from view, depending on the extent of the opacity.	4. In cataract, the anterior surface of the iris, its pupillary margin and area of pupil can be seen.
5. In opacity of the cornea, there is, with some exceptions, an appreciable distance between the opaque spot and the iris, the latter being posterior to the former.	5. Cataract lies just behind the iris, and in juxtaposition with it.
6. With the ophthalmoscope, opacities of the cornea, unless sufficiently large to cover the entire area of the pupil, or located near the periphery, appear as dark spots upon a dark background.	6. With the ophthalmoscope cataract does not appear as a dark substance, and the red back-ground cannot be seen.
7. Opacities of the cornea are a result of either inflammation followed by ulceration, or some injury to that organ, presenting during the time the external symptoms of inflammation.	7. The development of idiopathic cataract is not preceded by or attended with the external symptoms of inflammation.
8. Opacities of the cornea, with the exception of the arcus senilis, do not depend upon age.	8. Cataract, with the exception of the traumatic form, and that caused by certain debilitating diseases, as diabetes mellitus, occurs most frequently in persons that have passed the meridian of life.
9. Opacity of the cornea is frequently caused by granulated eye-lids.	9. Cataract is not caused by granulated eye-lids.
10. Opacity of the cornea is sometimes caused by a small-pox pustule appearing upon that organ.	10. Cataract is not caused by small-pox.

There is another method of diagnosing opacities of the cornea with the ophthalmoscope. Let the observer, using the direct method, look in such a manner that his visual line will pass through the turning point (which corresponds nearly to the posterior pole of the lens) of the patient's eye. It will be found that this point, together with the corneal reflection of the mirror, will retain the same relative position with regard to each other when the eye is moved in different directions. Any opacities of the cornea will not only appear as dark specks upon a red back-ground, but will move in the same direction as the eye of the observer. If these specks were posterior to the turning points, they would move in an opposite direction. Should there be an opacity in the lens, the excursion that it would make during the movements of the observer would be much less than those in the cornea. But if cataract existed, neither the red reflex from the fundus nor the turning point could be seen. Another method of diagnosing cataract is by the catoptric test.

We have supposed in the foregoing that the cataract was mature, or nearly so, yet by following the above I do not think there would be any trouble in locating an opacity, however small, whether it be in the cornea or in the lens.

Selections.

The Relation and Hereditary Tendency between Inebriety and Epilepsy.

By Edward C. Mann, M. D., Late Medical Superintendent, State Emigrant Insane Asylum, Ward's Island, New York.

Read before the American Association for the Cure of Inebriates, at their annual meeting, Philadelphia, September 26, 1876.

Very little attention has as yet been devoted to the relation and hereditary tendency existing between Inebriety and Epilepsy, although a very close relation undoubtedly exists between them. Careful examination reveals a large number of persons affected with epilepsy whose parents or ancestors have been addicted to intemperance. There is a very close analogy existing between the paroxysms of a dipsomaniac, where there is often a prodromic stage of nervous disturbance which may in-

capacitate the patient for mental labor, and the convulsions of an epileptic, whose paroxysms of intense nervous excitement are generally preceded by the "aura epileptica;" the difference being, that in the former case the paroxysms lasts for weeks, perhaps, while in the case of the epileptic it lasts but a few moments. As we often see the two diseases existing in the same person, it becomes impossible not to infer a similarity of origin. We have in both instances accumulated and pent-up nervous force or irritation, which finally expends itself, in the one case, in the unrestrained indulgence—in the irresistible impulse to indulge—in alcoholic stimulants; and in the other, in the convulsive movements of epilepsy. There would seem, beyond all doubt, to be a correlation of force which results in the mutual convertibility of these two diseases. It is not an unusual case to find in the various members of different generations of the same family different phases of the neuroses, such as insanity, epilepsy, phthisis, chorea, or inebriety, showing beyond all doubt correlation of morbific force in hereditary dis eases. I believe most firmly that the morbid condition of nerve element, or morbific force induced by inebriety, is indelibly impressed upon, or is transmitted to, the ovum at the time of conception, and that this morbific force lies dormant in the system until developed by an adequate exciting cause, and that the hereditary neuroses thus often skips a generation, leaving no appreciable manifestation of its existence in the intermediate generation. When this morbific force *does* manifest itself, next to the transmission of the pre-disposition to inebriety comes, unquestionably, epilepsy. From my experience, the children or grandchildren, while infants, are generally affected with convulsions, which may prove fatal, but more often tend to assume an epileptiform type as the child advances in years. I have repeatedly noticed in patients who did not have complete epileptic seizures, *epileptic vertigo*, which passed off almost instantly, but which for the time evidently abolished consciousness, partially, if not entirely. The brain of such children is often morbidly active, and too high pressure in education, or an unnatural forcing process during the formative period of childhood, often results, especially in girls, during the period of constitutional evolution—a time at which the organism is under physiological conditions that predispose in pathological

states—in disturbances, primarily, of the organs of respiration, circulation, and digestion; and, secondarily, in the production of hysteria and epilepsy, by overstimulating a brain already morbidly active and predisposed to disease upon the application of even comparatively trifling exciting cause.' Again, consanguineous marriages may be the connecting link between inebriety and epilepsy. I have known cases in which the intermarriage of blood relations, where there was inebriety that had laid dormant for one or two generations, has resulted in the old hereditary neuroses reappearing in the form of epilepsy in the offspring. It is a curious fact, also, that the sons born as the result of union of cousins in marriage appear to have a strong tendency towards inebriety. The only explanation which I can offer of such cases is, that it is probably the development of the latent morbific force residing in the constitution of the parents, who have a common ancestor, which has been lying dormant for one or two generations, and which is developed in the offspring as the result of the consanguineous marriage. I think that such latent morbific force and hereditary disease is far more common than we generally suppose, and that in many cases both insanity and inebriety are only the expression of latent disease, elicited by external, accidental causes, rather than as the result of moral or physical causes, to which they are attributed both by the laity and by the profession; the epileptic convulsions occurring as the result of inebriety, depend mainly, I think, upon a two-fold cause, which operates in the production of a morbid irritability of the medulla oblongata. Whether this be a transitory or a constant state, I think, is an open question. I am inclined to think that it is a *constant* state, which may, however, for the production of the epileptic paroxysm, require the additional stimulus of transitory cerebral irritation to be transmitted to the medulla oblongata, and perhaps the sympathetic. The two-fold cause which has appeared to me to operate in the production of what I take leave to term *alcoholic epilepsy*, consists, first, in the hyperæmia of the brain which causes symptoms of irritation, due to increased excitability of the nerve filaments and ganglion cells of the brain, which, by transmitting to the medulla oblongota a morbid irritability, results in epileptiform convulsions; second, a state of cerebral anæmia, which also induces a

morbid irritability of the medulla by causing arterial anæmia.

Finally, I believe that, as a result of inebriety, we may have epileptic convulsions occurring, merely from the state of nervous irritation produced in the medulla and at the base of the brain, which excites the motor nerves, from the poisonous and improper character of the blood plasma, produced by the presence in it of alcohol. This is probably often the case, without either very marked anæmia or hyperæmia of the brain. This appears reasonable when we reflect upon the fact that the amount of blood going to the brain constitutes about one-fifth of the whole bulk of the blood. Consequently any poisonous or injurious change in the condition of the usual supply of blood must be very apparent in the encephalic condition, and produces cerebral irritation incompatible with the performance of healthy function. There is in epilepsy, and more especially in epileptic insanity, a period which sometimes precedes, and sometimes follows, the epileptic paroxysm, in which often occurs an abrupt and complete change in the moral nature, so that we often witness the change from a sober, honest, and industrious, to a dissipated, negligent, and lazy man. These attacks often occur periodically in the course of epilepsy, associated with more or less maniacal excitement. During these periods of moral alienation there has often occurred in patients under my charge an irresistible desire to indulge in alcoholic stimulants to excess, so that for the time the patient, if not restrained, would pursue a course of inebriety, his reason seeming powerless to control the temporary dipsomania. There is still another class of cases in which the moral insanity takes the place of the epileptic paroxysm, and these cases are also very prone, according to my experience, to be addicted to inebriety if the opportunity of gratifying their morbid impulse occurs. In my observations, and in my study of insanity, I am continually called upon to witness its connection with disease, and more particularly with the hereditary diseases, and I have come to believe, as I have endeavored to show, that inebriety and epilepsy are two mutually convertible diseases. They both depend upon the morbific force, before alluded to, which may remain latent in the nervous system for a long time between the intervals of its manifestation, and although there is a certain dissimilarity of the symptoms

between the two diseases, it does not at all follow that they are owing to different causes. The fact of the hereditary disease appearing in different forms in members of of the same family, and passing from one form to another, leads us to positively infer a correlation of morbific force which leads to this mutual convertibility, which includes not only inebriety and epilepsy, but also, I think, phthisis, skin disease, insanity, scrofula, and perhaps rheumatism and gout. In my asylum practice, I have had ample proof of this, in the existence of the different phases of hereditary disease, and their alternations, both in the same individual and in various members of different generations of the same family. With regard to the treatment of hereditary disease, which I do not propose to take up in this paper, the chief indications point to hygiene and to wise marriages. As we have seen that the symptoms of constitutional disease are manifested soon after birth in convulsions, or some affection of the nervous system, we must turn our attention to the nourishment and education of the child, and endeavor to exclude everything prejudicial to its future mental and bodily health. By such attention to hygienic rules we are, as physicians, to endeavor to secure an exemption in the rising generation from these hereditary diseases so far as we may, and it is certainly our duty to aim at the eradication of hereditary disease, which, if it is ever accomplished in the future, as we hope it may be, will complete the round of the possibilities of preventive medicine.

Epilepsy occurring in offspring, as the result of inebriety in the progenitors, is complicated with defects or disorders of the mind in various ways, and the manifestations may, with propriety, I think, be classified as follows: 1st. Epileptic Idiots, whose intellectual faculties have never been developed. 2d. Epileptics who are imbecile or demented. 3d. Epileptic maniacs, who, without obvious disorder of the mind, when epileptic fits are coming on, are irritable, morose, malicious, and dangerous, and sometimes commit fearful crimes. In some instances the mental disorder takes the form of a paroxysms of acute mania, coming on suddenly. 4th. Epileptics, whose intellects are not impaired.

Pathology. The pathology of the production of epilepsy in the offspring of intemperate parents is very obscure. The condition of the mother during gestation,

if abnormal as in inebriety, cannot fail to interfere with the proper nutrition of the cerebral tissue of the fœtus, and it is in this way, I think, that during embryo life the brain of the infant often undergoes pathological changes, which induce both deficient moral power and epilepsy. It is certain that any pathological state which destroys the equilibrium of the functions of the organs of the mind, producing depression of some functions and excitement of others, cannot fail to produce in the children of such parents an ill-balanced and defective state of the nervous system, disposed to take on diseased action. It is probable that there exists in such children a state of the cerebral vessels which interfers with the uniform and healthy interchange of nutritive plasma passing from the vessels to the brain-cells, and of the fluid-cell contents in a state of degenerative metamorphosis, passing from the cells to the vessels. This state of the cerebral capillaries induces a morbid activity of the cerebral cells, which is in all probability the determining cause of the epileptiform convulsions from which such children suffer. That the functional disturbance resulting in epileptiform convulsions in such children may be due to diverse causes, that is, to anæmia as well as hyperæmia, I have proved to be a fact, as I have found in two or three instances, the brain and membranes completely bloodless, in children who died in hospital in the midst of convulsions, although I think that the general rule in such cases is more often to find an excessive quantity of blood present.

After numerous dissections of the brains of epileptics, both in cases resulting from intemperance and in cases occurring under ordinary conditions, Foville and Andral agree in their testimony that there is no special lesion attending this malady. Andral insists upon the necessity of distinguishing between those cases in which death occurs in the interval, and those in which the patient dies in a fit, as in the latter class of cases, there will be congestion of the cerebral vessels, which is the *effect* and not the *cause* of the fit, as some might suppose. I have found that the cases coming under my charge, in which inebriety in the ancestors could be clearly traced as a predisposing cause, that very few, if any, of the patients had been healthy persons previous to the occasion of the disease. That in a great many instances, especially in women, hysteria and other nervous affections had existed

previously, and that functional derangements of the nervous system had been of frequent occurrence since infancy. The pathological appearances which have been found by Schroeder Van der Kolk in the medulla oblongata, would seem to show that epileptic convulsions depend generally upon an increased afflux of blood to the medulla oblongata; although, as I have previously stated, it is a fact which has been proved by the experiments of Kussmaul and Tenner, in cutting off the arterial blood from the brain, that arterial anæmia is also a cause of epilepsy. Schroeder Van der Kolk found that in the medulla there generally existed a dilatation of the arterioles and capillary vessels, with thickening of the coats. In the cases where arterial anæmia of the medulla is the cause of the epileptic convulsions, it is probably the effect—when it occurs in the inebriate—which the alcohol exerts in producing a transitory spasm of the muscular fibres of the arteries with consequent arterial anæmia.

Prognosis. In epilepsy occurring in the inebriate himself, as the result of the morbid irritability produced in the central nervous system by his excessive drunkenness, we may reasonably expect an ultimate cure, if there is no structural change in the brain which has resulted from the course of inebriety. I have had three such cases of recovery of epileptic patients in the cases under my charge during the past year. On the other hand, when the disease occurs in the offspring of intemperate ancestors, as the result of the hereditary tendency, it depends more certainly upon structural disease of the brain, and, as a general rule, I have found that the more frequent the recurrence of the epileptic convulsions, in such patients, and the deeper impression which they leave behind them, the less hope is there of ultimate recovery.—*Quarterly Jour. of Inebriety.*

Conviction of a Quack.—It is reported in the daily press that a quack named Flattery has been convicted in Sacramento of a violation of the law regulating the practice of medicine. This, we believe, is the first conviction, and we trust that it will soon be followed by others.

Infusoria.

By Dr. Robt. F. Noyes, Providence, R. I.

When the microscope threw widely open the field of observation, and permitted man to see more, even, than he anticipated, there was discovered by Leeuwenhoek in water collected in vessels a number of living organisms of minute size. The organisms in question, because of their microscopic size and animal organization, were, by their discoverer, termed animalcules. The name of infusoria applied to the same organisms is of later date, based upon the fact that they are found in decaying infusions of various kinds. From the time of their discovery, in 1675, to the present, no subject perhaps in general physiology has been more thoroughly discussed than that bearing upon the origin of the minute bodies under consideration. Physicists have entered into the discussion with zeal, in order that they might ascertain the origin of the infusoria; but more particularly that they might investigate the long vexed question of spontaneous generation. From the days of Aristotle, the sage philosopher, to the present, the doctrine of spontaneous generation has received the attention of the physicists. It has been accepted as legitimate and rejected as false according to the light of natural history, and oscillation of the scientific pendulum. But it is proverbial that at every revolution of the scientific world the doctrine under consideration has found itself restricted to narrower confines. In the days of the Grecian philosopher referred to, it was supposed that clams, oysters, and shell-fish generally, were produced from the mud in which they were found; that wood-ticks came from the wood which they inhabited, and that book-lice originated in the leaves of old manuscripts.

The discovery of the Mammalian egg in 1827, and the consequent inauguration, some later, of the doctrine "*Omne Vivum ex Ovo*," did much toward settling the vexed question of spontaneous generation. But while the microscope was settling the modes of origin, and the manner of reproduction of many species, it was at the same time discovering new species, whose origin and modes of reproduction are so intricate as to baffle the scientific investigations of to-day.

The present status of science is such that the existence

of the doctrine of spontaneous generation is entirely dependent upon the uncertainty of the modes of origin of the infusoria, conclusively showing that the minute organisms in question obey the ordinary laws of repropuction, and the doctrine of Archebiosis falls at once to the ground. The question of the origin of the infusoria was discussed at length in 1748, by John Tubervill Needham and Lazarus Spallanzani. The position taken by Mr. Needham and the argument employed may be briefly stated. He originated the idea that the infusoria originated from decaying organic matter. To prove his hypothesis, he placed "hot" from the fire into phials and tightly corked them several organic infusions. In a few days the phials teemed with life. Spallanzani repeated the experiments, raised the temperature to the boiling point, and continued the ebullition for one hour. Subsequent examination revealed no infusoria. But, says Mr. Needham, the prolonged boiling has not only killed the germs, but has so changed the organic infusion as to prevent the ordinary and legitimate result. This difficulty was soon elucidated by Spallanzani, who conclusively showed that the prolonged boiling did not prevent the appearance of the infusoria when atmospheric air was admitted. Perhaps the absence of air in the hermetically sealed vessels was the sole cause for the non-appearance of the infusoria, and Mr. Needham claimed that a change of air is essential for the process of organization. To destroy the atmospheric germs, and allow of a free circulation of the air now became the problem. This was accomplished in 1836–7 by Schultze and Schwann, by two different methods. Schultze took an ordinary glass flask, half filled with an organic solution, subjected it to the boiling temperature, and then renewed the air by allowing it to pass through glass bulbs, some of which contained sulphuric acid, others liquor potassa. Schwann took a similar solution and provided for the free introduction of air by allowing it to pass through tubes heated to six hundred degrees. The specimens subsequently examined presented no evidence of animal life.

At this time it was conceded that the atmosphere was loaded with minute particles of matter. The presence of germs or spores was hypothetical. The dust rendered visible by the passing sunbeam, and the products collected upon mirrors in secluded places were microscopically ex-

amined, when the experimenters found that starch corpuscles, dust particles and debris of clothing formed the greater mass of the dust in question. Air taken from the summit of Mont Blanc amid eternal snows, from the scorching Egyptian plains, from the busy markets of Constantinople, and snow-flakes caught in the air were melted, all were subjected to a critical microscopic test with very negative results as regards the presence of organic germs or spores. Only a few in reality existed here and there, if many were seen by some, doubtless the imagination was responsible for this multiplicity.

In 1858, M. Pouchet, of France, maintained the doctrine of spontaneous generation, claiming that in the case of the infusoria it had succeeded in his hands. He announced that he had repeated the experiments of Schultze, but with different results, and from a boiled infusion of hay he claimed the production of a fungoid vegetation. He collected the dust-like particles of the air, closely examined them, and concluded that the atmosphere was poor in organic germs, and that the number was entirely inadequate to account for the abundance of the infusoria in the solutions tested. The subject at this point was then taken up by M. Pasteur, an eminent chemist. He was determined to show whether the atmosphere, in coming in contact with the solutions, brought with it, besides oxygen and hydrogen, anything connected in any way with life. He took sixty glass flasks, filled them to one-third of their capacity with a solution of yeast. He at once raised the solution to the point of ebullition and hermetically sealed the flasks. Twenty of them he opened and resealed about the level of the sea. Twenty at an elevation of tweny-five hundred feet, and the remaining twenty at an elevation of six hundred feet. Upon examination it was found that of the first twenty, eight presented evidence of living organisms; of the second twenty, five teemed with infusoria, and of the third twenty, a single one only presented similar evidence.

These conclusions would seem to accord with the doctrine of atmospheric germs, for it is fair to suppose that the atmosphere is more thoroughly loaded with organic spores or germs near the surface of the earth than it can be at various elevations above the level of the sea. But M. Pouchet performed similar experiments with different results. The debate between these two eminent gentle-

men, members of the Academy, became so enthusiastic that each stated his position in definite terms.

M. Pouchet said, "I assert that, from whatever region of the globe I take a quantity of atmospheric air, if this air be placed in contact with a putrescible liquid in hermetically sealed vessels, the liquid will invariably become filled with organisms."

M. Pasteur said, "It is always possible to obtain, in a particular locality, a notable volume of atmospheric air, which, without having been subjected to any physical or chemical modification, is nevertheless incapable of exciting any change whatever in a putrescible liquid."

The position of one being so diametrically opposed to that of the other, the Academy appointed a committee of investigation. M. Pasteur took sixty flasks, as in the first experiment; of these, nineteen were opened and sealed in the amphitheatre, nineteen at the top of the dome of the same building, and eighteen a few miles from Paris in a grove. At the expiration of four months an examination demonstrated that thirty-three flasks had remained entirely unchanged. Hence, it became the duty of the committee to announce that the assertions of M. Pasteur, contested by M. Pouchet, were of the utmost exactitude.

The experiments of Prof Wyman may be of interest in this connection. Indeed, it may be said that the investigations of Spallanzani, in 1776, and those of Prof. Wyman, in 1867, have contributed more towards settling the question of the origin of the infusoria than all other experimenters combined. Spallanzani showed that a prolonged boiling did not so change the solutions as to prevent the appearance of the infusoria when atmospheric air was admitted. Prof. Wyman clearly showed that the number of the infusoria was directly in proportion to the degree of heat employed, and to the time the ebullition was continued, and that the boiling could be sufficiently prolonged as to entirely prevent the appearance of the infusoria.

It has generally been conceded that a temperature of 212° for a short time, is sufficient to do away with the vitality of all germs and spores. That such a concession is without sufficient reason is evident, both from general principles and from specific investigations. It is well-known that one species will thrive in a temperature which

is fatal to another, and that the germination of seeds, and the unfolding of cells, is entirely dependent upon the circumstances under which they are placed. Prof. Wyman showed that a short boiling diminished the number of the infusoria, and that a prolonged boiling did away with them entirely in the solutions tested. The experiments of M. Pouchet are also opposed to this view, for he found that the seeds of the Brazilian Marecargo, after four hours boiling, retained their physical properties, and when planted germinated and produced progeny in the likeness of their parents.

The question of the origin of the infusoria, both at the time of their discovery and in 1838, when Ehrenberg published his magnificent work with colored plates, was different than it is at the present day. Then the origin of the infusoria as a class was the question. To-day it is the origin of certain individuals of that class. Science, as time has advanced, and as the powers of the microscope have increased, has caught many of the infusoria in their reproduction, and has removed them to other species, so that to-day a very small portion of the infusoria only remains without a satisfactory origin. The origin of the ciliated infusoria, constituting more than three-fourths of all infusoria as now understood, is no longer a question. Science has settled their origin. They are not of spontaneous development, but many of them are produced from eggs.

The question of the present day has reference to those infusoria, which are situated upon the very verge of the microscopic world. Many of these present no evidence of an internal organization. They are minute specks indicating their vitality by their heterogeneous motions. Of the the two genera most frequently observed, one has received the name of Bacterium, the other of Vibrio. It is the origin of these and one or two others, less common but similar genera, which is in dispute to-day.

Shall we accord to these minute bodies a spontaneous origin, or shall we urge the doctrine, or some modification of it, of "*Omne Vivum ex Ovo?*" In refutation of their spontaneous origin, it may be said, that the reproduction of all species, except a few genera of the infusoria, is accounted for in some other way. The experiments of the past are by far more hostile than favorable to the doctrine of their spontaneous origin, and an analysis of

the experiments almost conclusively shows that when the temperature has been sufficiently high, and sufficiently prolonged, to destroy the germs and spores, no infusoria have manifested themselves in the solutions under consideration. Judging the future by the past, it is fair to presume that science will soon explain the mode of origin of the genera in question.

It may be objected that an argument prospective and analogical is not the most valid, and that it is immaterial how the other species are developed, or how this species under consideration may have originated. But it may be urged that it is material and really the questlon at issue, how the Bacteria and Vibrios have appeared upon the globe. In this connection it may be said that to establish their spontaneous origin, it is incumbent upon its adherents to show conclusively that the genera in question have originated in hermetically sealed vessels containing infusions, which could have by no possibility contained germs or spores. Until they have done this they must be content to rest their doctrine upon hypothesis simply.

Following the recognized legal law of preponderance of testimony, the unbiased observer at present must reject the doctrine of spontaneous generation, remain neutral, or advocate the doctrine of "*Omne Vivum ex Ovo*".—*Detroit Med. Jour.*

On the Modern Neglect of Calomel in Certain Disorders.

By Dr. Dyce Duckworth, Assistant-Physician to St. Bartholomew's Hospital, etc.

What I now desire to call attention to is the neglect of mercurial medication in many so-called "functional" derangements of the body. And, as being uppermost in my thoughts, I mention first, as an instance which calls for this treatment, cases of acute gastric catarrh, the condition described by French writers as *embarras gastrique*, and but too well-known in all ranks of English life as "biliousness." As an accompaniment of many constitutional ailments, of acute inflammations, the continued fevers, the exanthemata and rheumatic fever, it is commonly enough met with, while as a result of intemperance in food and strong liquors it is even more familiarly known. But the frequency of its occurrence in children,

not always as a result of over-eating, but often ensuing, I believe, upon check to the functions of the skin from improper exposure and insufficient clothing, is not fully appreciated. In these cases there is sometimes a remarkable degree of pyrexia present at some periods of the day, and several *pseudo-prodromata* of enteric fever may be noted. Indeed this catarrhal fever really constitutes a large part of the early trouble in many cases of the latter disorder. The same condition is likewise very common during active periods of dentition, when the catarrh is often more distinctly appreciable as a flux from the nasal or bronchial membranes, and may be, and often is, mistaken for the ordinary effects of cold.

In this catarrhal condition, it was formerly, much more than now, the practice to employ either emetics or a mercurial purge. The former have almost entirely gone out of fashion, and I imagine it will be difficult to reintroduce this plan of treatment, despite Dr. Burton's recent plea for it in this journal; but the use of mercurial preparations is free from objection so far as treatment *jucunde* is concerned. Strong prejudice is met with sometimes among classes of patients who can descry the word "*hydrargyrum*" in their prescriptions, and its presence is held to savor somewhat of violent and effete practice, and of unwarrantable undermining of the constitution.

It is in response to some such feeling and objections as these that many practitioners hailed with satisfaction the advent of such a drug as podophyllin, which gained for itself, somewhat unwarrantably, as I believe, the name of "vegetable mercury." This drug, which is uncertain in its action and often productive of griping, even when guarded with henbane and given with other aperients, generally requires to be repeated, and in this way time is lost, and the results are often far from being so beneficial as those which follow the action of a grain or two of calomel.

Let it be noted in passing that many of the popular so-called "antibilious" pills notoriously contain mercury as an ingredient, notwithstanding impudent statements to the contrary on the pill-box labels.

It cannot, I think, be doubted that calomel, either alone or in combination with jalap, colocynth, or scammony, constitutes one of the most certain and efficacious purgatives, clearing the entire portal system, producing a large flow of bile in the motions (though not manifestly acting

as a strict cholagogue from the liver), and affording a measure of relief to the body unattainable by any other means.

To secure this result is a leading principle in the conduct of the catarrhal state above described. And besides this condition, I would adduce the cases of acute gout and of gouty dyspepsia, which are eminently well treated by calomel at the outset; so, too, many of the recurring congestive troubles of chronic cardiac and pulmonary disease are amendable to the same medication, care being taken to withhold the drug in cases where there is manifest renal degeneration, since, as is well known, mercury is ill borne under these circumstances, and may be mischievous.

Undesirable results would follow if mercury was frequently given in such cases as I have enumerated; but I only allude to the practice of employing it at the outset, and then it should be given boldly in doses of from one to five grains over night, once for all. In adults a draught may be given on the following morning, containing any suitable saline aperient, such as sulphate of magnesia or Carlsbad salt. This plan leads the way to a simpler or more specific course of treatment in any given case. I am satisfied that in many minor disorders of children nothing can take the place of calomel as a purgative, and much time is often lost by beginning with drugs that are accounted more simple. The only medicine that appears to me to approach calomel in value is castor oil; but this is constantly a source of trouble from its disgusting character.

I find that calomel is distinctly preferable to grey powder as a purgative, just as for other purposes strychnia is to milder preparations of nux vomica. Its action is smarter and more decided. It has also the great merits of being tasteless, and of exciting no nausea, and its bulk is small.

In strumous children, or in healthy ones who suffer occasionly from gastric catarrh, with tenderness and some timidity of the liver, no medicine is comparable to a purgative containing calomel. After its action a copious bilious stool or two is passed, the tongue is observed to become cleaner, the feverishness pertaining to this state subsides, and the child becomes brighter, and has restored appetite. A so-called simpler treatment with soda or citrate of potash will often fail to yield these results, and

so too will repeated doses of rhubarb and senna. The constant failure of "nursery remedies" in these cases must have forced itself upon the minds of most practitioners, and, truly, by the time medical advice is sought the time for the administration of calomel has fully arrived.

I shall not dilate further upon the virtues of this drug in connection with gastric disorders, but may mention that calomel is sometimes of value in cases of chronic catarrh, when given as in an acute case; and in cases of peritonitis with severe vomiting, small doses appear to exert some sedative action upon the intestinal tract.

I would not be understood to urge a return to the old custom of a large and frequent dosing with calomel. Nothing could be worse. All drugging is an evil; but when medicine is distinctly indicated we should not fear to use active agents boldly, and so as to produce their effects.

Many hard things have been said about the improper use of mercury, but instances are not far to seek in the practice of most experienced men where aperient mercurial medicine has been taken almost nightly for years without its being possible in common honesty to say that any serious harm had thereby accrued to the individual. The habit is of course a very bad one, but it may be easily broken. In one case I succeeded by giving bread pills, and in due time declared the fraud to the patient, who had henceforth full confidence in his peristaltic powers.

I venture then to close these remarks with a repetition of the statement I made at the outset, viz., that calomel appears to me to have fallen into unmerited disuse in many disorders, and I desire to put in a plea for the restoration of this drug to a larger sphere of operation, and I am confident that such practice will not only be for the benefit of sufferers, but also for the increased credit of medical art.—*Practitioner*.

The Venereal Ulcer, or Chrancroid.

Read before the New York Medical Journal Association.

Dr. F. N. Otis read an interesting paper upon the above subject, of which the following is an abstract: The venereal ulcer, commonly called chancroid, was an acute contagious ulceration recognized as resulting from venereal

contact. It was a purely local disease, and possessed characteristics which entitled it to be regarded as the highest type of acute ulcerative action. It commonly resulted from the inoculation of the purulent secretion of an ulcer having a similar character. Such purulent secretion, applied to sound integument or mucous membrane, was capable of effecting a solution of continuity, and of communicating to the sore at once its destructive and contagious properties. More commonly the chancroid was established upon an abrasion of the skin or mucous membrane in the act of coition. The secretion of the chancroid applied to an abrasion, congestion, inflammation, suppuration, and more or less rapid destruction of tissue followed in quick succession, and an ulcer was formed, sharply defined, with ragged edges, pultaceous floor, and secreting pus freely. The chancroid was seldom single, and occuring under circumstances of good general health, cleanliness and proper living, it was usually self-limited, and finally terminated in a scar such as was left after an ordinary burn. The secretion, from first to last, was purulent and inoculable, and the sore was capable of being reproduced as readily upon the person bearing it as upon one free from the disease; but when thus artificially reproduced, it lost, to a certain extent, its contagious property in each successive inoculation, until at last the secretion was no longer inoculable. The tendency of the disease, therefore, under favorable conditions, was towards recovery. When, however, it was attended by unfavorable conditions, such as irregular life, filth, venereal and alcoholic excess, a depraved constitution, etc., the venereal ulcer assumed its most vicious type. It might then assume a high grade of inflammation, and become *phagedenic*, or, in other and rarer instances, it might assume a sluggish type, known as the *serpiginous*, and persistently resist every mode of treatment for years. The extension of the chancroidal action might take place through the medium of the lymphatics and give rise to what was known as the chancroidal bubo. The contents of a bubonic abscess possessed all the peculiar properties of the pus from the original ulcer, and the open bubo took on the appearance of the typical chancroid, in its early stages, was easily controlled by proper remedial measures. The application of any caustic sufficient to destroy the affected tissue sufficed to change the venereal into a sim-

ple ulcer, and recovery followed without farther treatment than such simple sores required.

In addition to the conditions mentioned as determining the severer forms of venereal ulcer, it was also to be recognized that the lesion present partook, in a great degree, of the activity, whether greater or less, which characterized the lesion from which it was derived. We therefore met with every grade, from the simple excoriation to the sharply defined and most active ulcer. Hence all cases did not require the energetic treatment necessary to arrest the typical venereal ulcer, or chancroid. The milder varieties required only mild measures, and simple antiseptic, sedative and astringment remedies might be sufficient to effect a rapid cure.

With regard to the

HISTORY OF CHANCROID

it was said to be conceded to be of ancient origin—even to antedate the advent of syphilis, which had been claimed in ancient Chinese and Asiatic records, and to have existed between two and three thousand years before the Christian era. Notwithstanding its early recognition, shortly after the introduction of syphilis in Europe, in 1494, it became confounded with that disease. Its purely local character was lost sight of, and it was subjected to constitutional treatment as a form of syphilis. From the time the confusion of the venereal ulcer and syphilis became complete, all the contagious venereal diseases, gonorrhea, chancroid, or venereal ulcer, and syphilis, were practically regarded as identical—requiring the same constitutional treatment. For more than two hundred years forward it was supposed that constitutional syphilis followed gonorrhea and chancroid, and hence such patients were habitually mercurialized, but it finally became known that it was only the ulcer with indurated base and edge that was almost invariably followed by general syphilitic phenomena. John Hunter was the first publicly to recognize the value of the induration, characteristic of the venereal sore, which was followed by constitutional syphilis, thus making the first step towards restoring to the different venereal disorders their distinctive individuality. Hunter, however, was led into error, and taught that, while the local manifestations of venereal diseases were different, their source of origin was identical, and that the variations depended upon some peculiar condition or idiosyncracy of the

individual. In 1798, Benjamin Bell claimed a simple origin of gonorrhea, and in 1836, Ricord, of Paris, by a series of experiments and observations, eliminated it from among the manifestations of syphilis. Ricord, however, accepted the view of Hunter, and regarded the hard and soft chancre as identical in origin, but made different by individual idiosyncracies. Bassereau, of Paris, one of Ricord's pupils, in 1852, demonstrated that in the soft local ulcer and the indurated infecting chancre, two distinct diseases existed. His observations were made by confrontation; that is, by comparison of individuals, affected by venereal disease, with those from whom the disease had been acquired, and similar observations were made by Clerc, Diday, Rollet, and Fournier, in 1856. In 1857 Fournier and Caby, directed by Ricord, proved that in all cases of chancroid, the type of the ulcer remained unchanged in passing from one individual to another.

M. Clerc, although accepting and confirming the observations above alluded to, claimed to have demonstrated that the chancroid was the product of an inoculation of the syphilitic virus upon persons then or previously affected with syphilis, thus asserting a unity of origin for the two diseases. The same observer also claimed that, although as a rule the chancroid thus originated transmitted only chancroid, yet on being inoculated upon a healthy person, it was capable of reverting to its original type and of communicating syphilis.

Rollet and others, on the contrary, held that the chancroid, the soft and local sore, and the chancre, the initial lesion of syphilis, were separate and distinct diseases, and had their origin in separate and distinct influences. Thus the two schools, the unicists and the dualists, were initiated. Lee, of London, Bock, of Christiania, and others, succeeded in producing the typical chancroid upon persons syphilitic and non-syphilitic by inoculation of pus from an irritated syphilitic chancre. The degree of irritation required was that sufficient to produce free purulent secretion, and such sores were inoculable in successive generations upon persons quite free from syphilitic taint, and progressed in all respects like the ordinary venereal chancroid. Next it was found that when the superinduced irritation subsided, the secretion was no longer purulent; it was no longer auto-inoculable. It was concluded, therefore, that the property of inocula-

bility or contagion depended upon a peculiar action resulting from the persistent irritation of an already diseased surface. The fact that such a sore could be established upon persons free from syphilitic antecedents, and not be followed by constitutional syphilis, demonstrated that it did not necessarily depend upon the syphilitic principle. Then came a series of experiments made by Pick, Koebner, Kaposi, and others, to ascertain the effect of inoculations of pus from simple lesions on persons free from syphilitic taint. The result had been formulated by Kaposi as follows: "Affections in non-syphilitic persons which are of slight virulence, and the secretions of which are not inoculable, can be made to produce an inoculable secretion by the application of an irritant." Reference was also made to the paper read by Dr. Bumstead, before the Centennial Congress, in which was reported the case of Dr. Wigglesworth, of Boston, who in 1866, while in somewhat impaired health, inoculated himself with the pus from a simple acne pustule. Three generations of ulcers were established, and left as many distinct cicatrices. The experiment was under the personal observation of Prof. Zeissl, of Vienna. Reference was further made to the writings and experiments of Baumler, John Morgan, and Vidal. Personal observations had shown Dr. Otis that the muco-purulent secretion from a non-specific nasal catarrh would sometimes produce excoriation of sound cuticle; that contact with secretions from non-specific leucorrheas would sometimes promptly cause pustular eruptions upon the preputial mucous membrane, more or less rapid in development, and progressing according to the degree of acridity of the fluid causing them—in some instances scarcely more than sero-purulent vesicles, in others so vicious that their development and progress did not differ appreciably from the typical chancroid. Reference was then made to several illustrative cases.

From all that had been adduced it seemed to Dr. Otis that it must be conceded the quality of the pus was variable, and varied according to the circumstances under which it was produced, and the condition of the person on whom it might be inoculated. A low condition of the general system, from any cause, predisposed the tissues to take an ulcerative action, and to elevate the attendant purulent secretion to a point of contagiousness. When,

therefore, it came to be considered that the most frequent habitat of the venereal ulcer or chancroid was in localities where venereal excess and every kind of debauchery ran rampant; when to that was added the potent elements, syphilis, scrofula, filth, and irregular life, and also that chancroid was by far the most frequent, as compared with syphilis, among the debased and dissolute, the conclusion was regarded as inevitable that chancroid was of necessity a self-engendered disease, possessing no *specific* virus, but acquiring its power for destruction and contagion through various diseased conditions, or through the reckless stimulation and vitiation of benign natural processes. The distinction between chancroid and the initial lesion of syphilis, at the outset, was often impossible, and never possible unless the source of origin was known. The leading feature and characteristic of chancroid was a *necrosis*, that of the syphilitic lesion one of rapid *proliferation*. The latter was a *builder* of tissue, the former a *destroyer*. The only method of determining whether a given chancroid or other lesion was to be followed by constitutional syphilis (unless its source was known) was to wait at least one full month after the exposure, even though during that time the suspected lesion—possessing all the characteristics of the typical chancroid—had fully healed. The frequent association of chancroid with syphilis would never lead to mistaken identity if it was borne in mind that syphilis was always, in all its manifestations, the result of a process of *proliferation*, of exaggerated growth. The only product of syphilis, from the initial lesion to the growing tumor, was an excessive accumulation of tissue-building cells. Chancroid, on the other hand, from its inception to its cicatrization, was a process of *destruction* of tissue. It could be claimed, therefore, that syphilis and chancroid were always and only in relation to each other as life to death—each the highest type of its own peculiar action.

The paper being open to discussion—

Dr. F. R. Sturgis remarked, with reference to the anti-inoculability of non-specific pustules, such as acne, ecthyma, etc., that the experiments mentioned in the paper had been made upon persons who, at the time, were the subjects of debility, and that it was probably the debilitated condition which favored the development of the peculiar ulcers obtained; whereas, with the inoculation of

chancroidal ulcers, it made no difference, so far as debility was concerned. And it was only after repeated inoculations with the same virus had been made that there was a seeming immunity obtained; but they could be reproduced with new virus in fresh soil as well as on the person bearing them.

The inoculation for acne, ecthyma, herpes, etc., had never been successful, unless the person upon whom the inoculation had been made was in a condition of debility. To inoculate healthy persons and produce an ulcer, the pustule must first be irritated, thereby introducing a new element into the experiment.

Dr. Sturgis had inoculated both himself and the persons bearing the lesion, from croton oil pustules, acne, scabies, and pemphigus, without the element of irritation being introduced, and on no occasion had the least effect been produced.

His experiments were performed upon those persons among whom they would be most likely to be successful, *i. e.*, hospital and dispensary cases, because they were surrounded by unfavorable conditions.

With regard to the statement made by Dr. Otis, that chancroid was probably not due to a special virus, but rather to unfavorable surrounding conditions, filth, excesses, irritation, etc., Dr. Sturgis believed that more evidence was required upon that point before it could be decided positively. Whether there was a real virus or not, we did not know what it was, and could, judging from its fruits, only say that it was some irritant which produced its peculiar effects.

Dr. Sturgis referred to a case mentioned by Dr. Otis in which the patient, not particularly strong, had been inoculated, with the probable production of a chancroid, and claimed that in such patients it was found that herpes would assume all the characteristics of a superficial chancroid, producing in the persons a lesion carrying out all the semblance of a chancroid, except that it was believed, if herpetic, to be incapable of inoculation either on the bearer or another; and here he believed inoculation had not been practiced.

From the appearance of the two lesions one could not tell whether he had to deal with a superficial chancroid or a herpetic vesicle; their semblance was such as to render it impossible to distinguish them. Dr. Sturgis be-

lieved that more light was required before it could be decided that acne pustules were inoculable in the same sense as chancroids.

Dr. Otis remarked that he wished to be understood as saying that sores on inoculation communicated like sores; that a sore having a low grade of inoculability communicated one having a like low grade of inoculability, if any at all; and that the chancroid in its typical state was a sore exposed to all the irritating influences which could be conceived of, and had thus been raised to its present degree of active virulence, but that it lost such activity by repeated inoculation.

It seemed to Dr. Otis that Dr. Sturgis had very happily supported him in the statement, that sores which were engendered in weakly individuals produced on inoculation similar sores in persons also debilitated, while no effect was produced when the secretion of the same sores was inoculated on healthy persons. From that effect it became evident that the contagious property was, to a certain extent, dependent upon the condition of the individual affected, and that debility was *one* of the known factors in producing the inoculable property in purulent secretions. It was further claimed that vinous and venereal excess, uncleanliness, etc., were among the other factors which went to make up the degree of virulence that characterized any given local contagious venereal lesion.

If we were compelled to wait until all the exact conditions obtaining in the production of typical chancroid were present in our experiments, the subject, of necessity, must remain open forever. . . . . —*Med. Record.*

Second Reception of the Boston Microscopical Society.

Adress by DR. OLIVER WENDELL HOLMES.

The Boston Microscopical Society, formed for the purpose of uniting those who use the microscope in scientific research, and to furnish those who are interested in the study of microscopical objects facilities for giving and receiving information as to apparatus, manipulation, etc., gave its second annual reception at Union Hall, on Boylston street, last evening. The society has recently rented and furnished rooms at No. 29 Pemberton square,

and its meetings are held on the first and third Thursdays of each month. At present there are about fifty members, including many well-known scientists, and gentlemen who are interested in its aims can assist it in the needed additions to its library, apparatus and cabinet, and by incoming members. Its officers are David Hunt, Jr., M. D., President; Stephen P. Sharples, S. B., Samuel Wells, Esq., Vice-Presidents; R. R. Andrews, D. D. S., Recording Secretary and Treasurer; W. G. Corthell, Esq., Corresponding Secretary; C. H. Osgood, D. D. S., Custodian; Council, J. Frank Brown, Esq., I. J. Wetherbee, D. D. S., E. C. Brooks, Esq.

The gathering last evening was a very brilliant one. Dr. Oliver Wendell Holmes delivered an excellent address; the Rev. Dr. Edwin C. Bolles, of Salem, exhibited some very fine microscopical specimens by the use of polarized light, and some fifty different microscopes displayed specimens prepared by the owners and arranged on tables on the sides of the hall.

The meeting was called to order by Dr. Hunt, and he at once presented Dr. Oliver Wendell Holmes, who introduced his address by saying:

DR. HOLME'S ADDRESS.

To men of my generation this modern world, which most of you take as a matter of course, it being the only condition of things of which you have had experience, is a perpetual source of wonder—a standing miracle. Science and art have in our time so changed the aspect of every day life that one of a certain age might well believe himself on another planet, or in another stage of existence. The wand of Prometheus is in our match boxes; the rock of Horeb gushes forth its streams in our dressing rooms; the carpet of Arabian story is spread in our Pullman car; our words flash from continent to continent; our very accents are transmitted from city to city; the elements of forming worlds are analyzed in our laboratories; and, most wonderful and significant of all, the despotic reign of tradition has received its death below when the angel of anesthesia lifted from womanhood the worst terrors of the primal malediction.

Dr. Holmes then spoke of the microscope as one of the acquisitions of knowledge coming within his easy remembrance; the conquest of the invisible universe revealed

to us by the microscope, and exhibited an ordinary pocket magnifier, which he remembered from the days of his boyhood, and was now principally remarkable as recalling the person from whom it was purchased by his father, it being the Rev. John Prince, of Salem, and who, with the Rev. Dr. Manaseh Cutler, of Hamilton, were noted for uniting the study of science with the exemplary discharge of their clerical duties. When he studied medicine the medical book treated the microscope with disgust or contempt, and from 1833–1835 he studied in the best schools of Paris, without hearing a word of the use of the microscope; but about that time a Frenchman published an organic chemistry which brought some of its revelations to notice.

Dr. Holmes then sketched the history of the growth and perfection of the microscope, and the wonders it had accomplished in scientific research. He also noted some improvements that he had made for his own convenience, and gave his ideas of the most important points which a useful microscope should combine, such as that it should be portable, and so that it could be taken down and set up with the least trouble. He related his own experience with microscopes, giving some opinions upon the best manufacturers. Alluding to the instruments manufactured in this city, he said that Boston might well be proud of the telescopes of Abvan Clark and the microscopes of Robert B. Tolles. He then spoke in a humorous vein of the estimate which the owners of microscopes placed upon their objectives, and the rivalry that often sprang up, and he added: "But studying out a difficult point in vegetable or animal structure is one thing, and fighting objectives is another, as full of excitement as cock fighting and as different from true scientific work as that is from laying eggs and breeding chickens." He had mainly used the microscope in the class room, and he spoke of the fact that any imperfection, such as a speck of dirt or anything that ought not to be in the focus, caught the student's eye as readily as lovers' hands find each other when the railway train enters the tunnel. He supposed the objects of the society were, in the first place, the exhibition of the most interesting microscopic objects in the various specialties cultivated by different members, and next to that the comparison of interests and the showing up of new inventions and contrivances in microscopic

apparatus. Such an association may give much entertainment to its members, and, if conducted in a truly scientific spirit, some real instruction. But there is great danger that such a body will lapse into a kind of dilettanteism which will keep the more genuine students of science away from its meetings.

There was such a thing as giving too much prominence to fine instruments, and he plead for the simplest adjustable instruments, affirming that most of the great discoveries of the microscope had been made with moderate cost instruments. He did not think that sufficient prominence had been given to the use of polarized light, and the revelations made thereby. He alluded specially to Spencer and Tolles, the great American manufacturers of microscopes, and said that the Boston glasses were clearer than those made in London, and which retained a trace of the London fog. In saying this he did not mean to flatter that local vanity which was found in Boston, London, Paris, Pekin, Timbuctoo and all the other places mentioned in Lippincott's Gazetteer.

In speaking of Bostonians who had contributed to microscopical science, he alluded to Dr. Waldo Burnett, Dr. John Deans, Mr. E. Bicknell, recently deceased, and to Drs. Lee, Quincy, Wardsworth and David Hunt. He spoke of the temptation to play rather than work with the fascinating instrument, and urged the members of the society to use the microscope, not alone to show what it had done, but what it was capable of doing. He concluded with an eloquent reference to the greatness of God as revealed in the delicate forms of organization, and the wonders revealed by the use of the microscope.

MR. BOLLES' EXHIBITION.

The Rev. Edwin C. Bolles, D. D., of Salem, then gave an exceedingly interesting half-hour exhibition of polariscopic objects with the oxy-hydrogen microscope. Dr. Bolles has been for many years a student of microscopical science, and especially of its use in connection with polarized light, and he accompanied the exhibit with a very pleasant explanatory lecture.

His exhibit included 1, pressed glass, to show tension lines; 2, mica design, to show effect of thickness of crystalline film on color; 2, selenite crystal for do.; 4, selenite do. do.; 5, selenite design (tulip); 6, selenite design

(fruit); 7, crystals of quinidine; 8, crystals of salicine; 9 and 10, chemical crystallizations; 11, stilbite; 12, Labradorite; 13, quartzite; 14, right and left handed quartz; 15, silk fibres; 16, section of clematis; 17, ostrich tendon; 18, eagle's beak. The wonderful color effects produced, especially those by the use of selenite specimens, delighted the audience, and were warmly applauded.

A Case of Complete Ablation of the Uterus.

An apparently successful case of complete excision of the uterus, for cancer, was reported to the last meeting of the German Society of Physicians and Naturalists, by Dr. Hennig, of Leipzic.

In the performance of the operation the uterus was first separated from its connections with the anterior wall of the vagina by a knife and scissors; next it was separated by the fingers from the anterior fold of the peritoneum; and then, since the vessels in the broad ligament bled but little, the fundus of the uterus was drawn forward, first with two fingers and afterward with a hook, so that its connections with the posterior wall of the vagina were divided without difficulty. The growth had invaded the posterior vaginal wall, and one tubercle involved the wall of the rectum, and in its removal a small opening was made in the rectum. The total length of the uterus was five and a-half inches, and the carcinoma had invaded the whole cervix. It was found that the left ovary and fallopian tube, adherent to the uterus, had been removed with it, and about one-half of the right fallopian tube. Thus the uterus had not been separated from the peritoneum, as intended, but the tissue which was attached to the base of the uterus showed that old peritoneal exudations had filled up and enclosed the pelvic portion of the peritoneal cavity, in consequence, no doubt, of perimetritis. The opening in the rectum was closed with the needle, and a piece of ice put into the wound; there was little subsequent hemorrhage, and the wound was cleansed afterward by injections of salicylic acid twice a day. Considerable peritonitis followed, the temperature of 105° being reached on the fifth day after the operation, but it gradually subsided. The recto-vaginal fistula was closed by an operation four weeks after the excision of the uterus,

and, with the exception of a small superficial abscess from some enlarged glands, the patient's progress was most satisfactory. Four months later a small soft growth appeared in the neighborhood of the fistula, and was removed without difficulty, the fistula having become almost closed; and up to the date of the communication, eight months after the operation, no further symptoms of recurrence had manifested themselves, and the patient's general health continued good.—*Medical and Surgical Reporter.*

Colored Light in the Treatment of the Insane.

To those interested in the treatment of the Insane, many thoughts must be suggested by the recent investigations of Dr. Ponza, of Alexandria, on the influence of colored light in the treatment of insanity and allied disorders of the nervous system. As a means of discipline, the two extremes—viz., open daylight and darkness—have been employed in this country more perhaps than in any other; and yet the spectral modifications have escaped our notice in their influence on the diseased mind. This is curious, because in no branch of the profession so much as in lunacy, and in no part of the globe more than in this country, have the features of disease been more accurately described, and yet the clue to the use of colored light given by the Insane has been by us overlooked. Take, for instance, the epileptic temperament, where the religious sentiment, the peculiarities of different kinds of seizures, the general neatness and fastidiousness of attire, the fondness of colors, etc., have been so accurately noted by English observers; but where, beyond seclusion in a separate and usually darkened room, no use of the evident love of this class of patients for color has been made.

Dr. Ponza's experiments consisted, in the abstract, in placing his patients in chambers colored red, blue, and violet, with most surprising results. In the red room he placed a melancholic man, who had refused his food, but who, three hours afterwards, was found lively and hungry. In the blue chamber he placed a violent lunatic who became much quieter within an hour. In a violet room he procured equally good results. Of all the rays of the spectrum, the violet are those which possess the most

intense electro-chemical rays; the red are richest in caloric rays; while the blue, devoid of caloric chemical, or electric rays, is in fact the negation of all excitement, and is most useful in calming violent excesses of fury. Couched in the choice, neat phrases by which French authors commonly express themselves, the experiments seem conclusive. True it is, that we have reports of only a very few cases; that no indication is given of various sources of fallacy; that the accounts of the permanence of the cure are unsatisfactory, still the fact remains, that a record has been made of a new method of treatment, the facilities of working, and economy of which commend it to those working in the same line.

No experiments are on record of the different properties, as regards extent, of the calorific, chemical, or electric parts of the spectrum of bright daylight in different countries. It cannot, indeed, be said, in the absence of direct experiment, that such differences actually exist; and yet, a priori reasoning would lead us to expect it. The flow of spirits and the emotional susceptibility in the inhabitants of brightly lighted but not oppressively hot countries; the feeling of buoyancy that all experience in a bright summer in this country; the change from depression to exuberance in visiting lands with clear and bright atmospheres; the improved digestion in warm and clear weather; and the depression of darkness—all tend to show the influence of light on life. Ever since and before the days of Sartor Resartus, the dress and its color have given a certain clue to the life of the inner man; and the variegated dress of the most civilized warm countries are but external manifestations of minds influenced by atmospheric agents, the chief of which is light. It is interesting to notice how a person in various stages of an insane condition will exhibit traits of characters and alterations of dress that we can recognize as being usually associated. Thus, in a stage of depression, his clothes will be, if he exhibit any choice at all, as sober as a Dutchman's; but when he has entered on another phase, and has become gay and excited, no peasant that ever lived in the sunniest spot can match him in his peculiar arrangement of dress and color. Many insane persons can stare at a bright sun steadily; this, too, when the vision for near and distant objects is by no means im-

paired. These seem to be unsusceptible to spectral influences, and their insanity is usually of a harmless description. As might have been expected, blind insane persons are, unless rendered irritable by the dependent state of their life, or troubled with hallucinations of other senses, quiet and uninteresting; their life, being deprived of light, exhibits no peculiar color in mind or body.

Heat, as shown by the experience of the Turkish bath, is a powerful curative in insanity, chiefly because it promotes sleep. Electricity is of proved advantage in primary dementia and melancholia. In light we have a combination of these with a third—chemical influence—which has been long utilized in the artificial rearing and forcing of plants, and which is destined to bear a large part in the treatment of the highest development of life—the human race. One of the greatest punishments that can be inflicted is to place a person in total darkness; nothing is so dreaded in the army, in the convict service, and by the insane, when it is used as a punishment. We look upon "seclusion"—*i. e.*, separation in a single darkened room—as of absolute necessity in some states of insanity, especially when associated with epilepsy; and is it right that those who argue on the propriety of using seclusion should be met on the ground of its being a really curative measure. Surely a remedy which has not only electric, chemical, and thermal properties, but which can be modified so as to procure any desired arrangement of these, and one combining also, as it does, opportunity for separation from other exciting causes, must and always will be, and should be, a powerful instrument in treating insanity; and the ideas of those are visionary who hope to treat acute or chronic disease without it. It is very probable that temporary color-blindness—modifications of the internal machinery giving rise to hallucinations of color—are very common in the insane, and lead to acts of which an outside observer can not perceive the rationale. In such cases, an artificial light might be of the greatest value. The violet rays, which possess the most electro-chemical rays, are precisely those which might be expected to be of service in dementia, melancholia with refusal of food, and hysteria with dyspepsia.

A subdued natural light is essential to rest and sleep; and, if we can do away with the terrorism inspired by placing a patient in an absolutely dark room, while mod-

ified light can be afforded, without doubt in numberless instances repose will be gained which sedatives might be unable to procure. Everywhere, when rest is desired, or the emotions have to be appealed to, colored light is employed. Witness the "stained and storied pane" in ecclesiastical edifices; the dim light of the Turkish bath; the deadening and coloration of light on the stage, when sympathies of the audience are appealed to; the "darkness that can be felt" on a rough night at sea.

That the gloominess of many old large asylums has a depressing effect on the inmates is seen by the surprising recovery of the latter when removed to better conditions; while, on the other hand, very light rooms and corridors are unsuitable to the treatment of many forms of acute disease. Many insane refuse to wear clothing, unless dyed of a certain color. Why not seize the fact, and, treating it as a delusion or an hallucination, treat them according to the color of their minds? It is a fact that some persons can detect the color of a material by feeling it. Suppose such a one in an insane state irritated by contact with material of a color from which, as a result of a delusion, he has a special aversion; how his case must be retarded unless the very conditions of his mind are recognized, and he is bathed in light of a proper tint.

There is a harmony between light and sound, and a judicious application of the latter are still to be made in the treatment of the insane.

We read recently in a German book of a "gamut of smells," where the author professes to give a chord of flowers analogous to a musical combination. There is no reason why other special senses besides light should not be brought under control. Facts on all these subjects are still wanting. We can do no more than indicate what has been done and the paths of future inquiry. The simplicity of this Jordan may have caused it to be overlooked; but we advise all interested to read Dr. Ponza's short essay in the "Annales Medico-Psychologiques" for January.—*Brit. Med. Jour.*

Dr. Warlomont, of Brussels, states that, out of more than ten thousand children vaccinated with animal virus, not one was attacked with small-pox during the severe epidemic of 1870.

Treatment of Typho-Malarial Fever.

The most essential points in the treatment of this disease consist in controlling the bowel trouble, and in giving plenty of good nutrition and stimulants, especially in the latter stages of the disease. To control the bowel symptoms I find nothing more excellent than sub-nitrate of bismuth and Dover's powders, unless the diarrhea becomes excessive, when I employ an electuary of pulverzed opium, acetate of lead, sub-nitrate of bismuth, and glycerine, and use as an injection. When the tongue is very red and dry, denoting much inflammation of the bowels, I give a strong solution of chlorate of potash—most emphatically the best remedy for this condition. We are familiar with its virtues as a therapeutic agent in the treatment of all local inflammations of the mucous membrane. When given internally we can detect it in the urine in less than fifteen minutes. I have used this remedy when the bowels were enormously distended, tongue dry, red, and painted, and in less time than twelve hours—sometimes even within six hours—have denoted a change in the appearance of the tongue; it becomes pale and moist; the tympanitic distension of the bowels is relieved, and the general symptoms denoting inflammation become more favorable. Chlorate of potash comes in direct contact with the inflamed mucous membrane of the bowels, and especially the Pyerian glands. Modern physiologists direct our attention to the fact that these glands are the beginning of the lymphatic system in the intestinal canal, although formerly their function or purpose was not known. Flaxseed poultices act well when the bowels are much distended, although sometimes we are compelled to make use of a blister. Turpentine should not be used, from the fact that it so frequently disorders the stomach. I do not think it does any good whatever, unless in getting rid of the gas; then, also, there is danger of its causing strangury. Quinine is of no therapeutic value in the treatment of this disease, in fact, I believe it tends to aggravate the symptoms. Sleep must be had, and for this purpose I always prescribe hydrate of chloral and bromide of potassium in combination. This combination acts much better than sulphate of morphia, as it generally produces a dreamless, refreshing slumber; I sometimes

use camphor-chloral. When the temperature is very high, pulse full and weak, I use Norwood's tinct. verat. viride, the most reliable of all the arterial sedatives. During the febrile stage I frequently make use of spts. nitr. dulc. as a diuretic, alternating it with the neutral mixture of the Dispensatory. But, as I said before, we have no specific treatment fcr this disease. We can but aid Nature, and clinical experience has taught me that the remedial agents I have mentioned above are among the best our profession have as yet discovered.

Microscopy.

San Francisco Microscopical Society.

The annual meeting of the San Francisco Microscopical Society was held on Thursday evening, February 1st, with an attendance of members which showed an interest in the welfare of the organization-

As the only business of the evening was properly that pertaining to reports from retiring officers and the election of officers for the ensuing year, of course there was but little of scientific interest aside from that gathered in the report of the President, which is given below, and furnishes a very full and intelligent abstract of the doings of the Society for the past twelve months, and will be found of sufficient interest to warrant its entire purusal.

PRESIDENT ASHBURNER'S REPORT.

To the Members of the San Francisco Microscopical Society—GENTLEMEN: While the year which closes this evening has been a satisfactory one for our Society, it has also been an unventful one. Our financial condition, as you learn from the report of the Treasurer, is such as to do him credit, and the general interest in the welfare of our Society, upon which I congratulated you last year, not only continues to be maintained, but is, I think, in many respects greater than before. We have not been called upon to mourn the death of any member, though a most melancholy accident to one of our number, Dr. James Blake, has prevented his attendance at our meetings during the last four months, and, sad to say, seems likely to impair his future usefulness.

During the year we have held twenty-three regular meetings, none having failed for want of a quorum.

We held our usual annual reception in the hall of the Mercantile Library, when nineteen members exhibited. The catalogue contained the names of twenty-two members, who had promised to participate, and to whom tables were assigned, but three were unavoidably absent. Two hundred and eighty visitors were present during the evening, and, like all our previous efforts in this direction, the entertainment was pronounced a decided success by those who had an opportunity of being present. At this reception an attempt was made to have the exhibits instructive as well as interesting by presenting a series of objects from the mineral, vegetable and animal kingdoms, in a somewhat orderly arrangement. As this idea was only conceived a few days before it had to be carried out, the experiment was not so successful as I hope it will be on another occasion. What is necessary to bring this about is that a scheme be carefully matured by a committee some time before the annual reception, and as soon as possible afterward the members should be called upon to co-operate by securing the specimens they may wish to exhibit, but which should in all cases be subordinated to and illustrative of the general plan. The method here suggested will require labor and study, but if successfully carried out, will reward us by the extent to which it must prove instructive to the majority of our visitors.

Two weeks ago, the trustees appointed Mr. X. Y. Clark, son of the late Prof. James Clark, of Harvard University, Librarian, and he will in the future and until further notice have charge of the books and apparatus belonging to this Society. The short interval between his appointment and the annual meeting has prevented his making you a report this evening upon the condition of the articles in his charge.

Since I first entered upon the duties of my office, the efforts of the trustees have been continually and systematically directed toward increasing and improving the library, so as to make it in all that relates to our special branch comprehensive and useful for both general reading and purposes of reference. Our expenditures for books and periodicals have during the last twelve months amounted to $438.18, and many valuable additions have been made by purchase as well as through donation. Our shelves

now contain 237 bound volumes, besides material which, when bound, will make several more. The increase over last year has been 103 volumes.

Our cabinet now contains 523 slides, the increase over last year being 94. The set of animal parasites and acari is now as nearly complete as it can be conveniently made, and answers very well the purpose for which it was ordered, namely, to furnish typical specimens of the more common varieties. Of these we now have 70 slides, 29 having come to hand since last February.

The trustees have also recently ordered a complete collection of the diatoms prepared by Professor Hamilton L. Smith, of Hobart College. This, when complete, will consist of 500 slides of typical diatoms.

In October last, at the instance of some of our more enterprising members, we abandoned the dreary rooms on California street, moved into these commodious quarters, where we enjoy a comparative freedom from dust and noise. Our general facilities for working are now much greater than ever before, and are such as would be envied by many other associations. The stock of apparatus with which we began the year has been increased by the arrival in February last, of the Nachet microscope, ordered in 1875.

From our Vice-President, Mr. Hyde, we received a Tolles' amplifier, and at other times we have been favored by similar liberal donations from our members.

At nearly every meeting we have received one or more slides, either from our regular or corresponding members, or else from parties in the Eastern States who take this means to enter into communication with us.

From Mr. A. Natchet, of Paris, we received at the beginning of the year six slides of microscopical lathe work. Each specimen consists of exceedingly fine rulings upon glass, covering a space of from 1 to 1½ millimetres in diameter, and of every variety of pattern, no two being alike.

In the department of micro-lithology, from Mr. Attwood, who has made this subject a specialty, we received a set of fourteen slides of rock sections, taken from portions of the Comstock Lode. These specimens may be regarded as a continuation of the series given us last year of the wall rocks of several of the more important gold-bearing veins of California. In this same department

Mr. S. B. Christy, of the University of California, presented us with four slides of sections of a hard silicious substance, termed by the miners "nigger-head," and frequently found in the body of the Mount Diablo coal seam. On examination, these specimens show a distinct woody structure, and are undoubtedly fossilized wood; and although the species has not yet been determined, it is thought by Mr. Moore to be a variety of *quercus.*

From Mr. Banks, our Corresponding Secretary, who never neglects an opportunity of doing our society a good turn, we have received several scientific works, the most noteworthy of which are the "Natural History of the United States," 4 volumes; "Mollusques Fossiles," and "Monographies d'Echinodormes Vivans et Fossiles"—all by the late Prof. Agassiz.

From Dr. J. H. Wythe we have received a set of curious old works in German, entitled "Natural History of Insects," by Jablonsly & Herbst, published in 1789; and also "Dissertations Relative to the Natural History of Animals and Vegetables," by the Abbe Spallanzani, published in 1784.

From Mr. J. P. Moore we have received several communications, one giving an account of the *Pinus Tuberculata*, which was accompanied by a report upon a fungus found on the leaves of the grape vines near the Mission San Jose, and which had been submitted to him for examination. He pronounced this fungus to be *Oidium Tuckeri*, or the same which has caused so much devastation among the vines of France. Two other papers by this same gentleman, also upon fungi, of which one gave a description of a new agaric found growing 400 feet below the surface in the Yellow Jacket mine. This fungus he named, owing to its peculiar shape, *Agaricus Tridens*, and through the kindness of Mr. W. H. Rulofson it was carefully photographed, and several copies of the print given to this Society.

From Dr. Harkness we have received three papers also upon as many varieties of fungi. One of them described a new fungus of the genus Peridermium, found growing upon the limbs and trunks of the young Pinus Ponderosa trees in the vicinity of Colfax. Out of compliment to the doctor this fungus was named by the Society *Peridermium Harknessii.* Of the other communications, one was a notice of the fungus *Melampsora Salicini*, found

growing on the willows near Sacramento, and the other called attention to a fungus which he had found upon the cockle burr.

From Mr. Kinne we have had one paper embodying the results of an examination of an insect which was supposed to be the cause of the destruction of so many orange and lemon trees in the vicinity of Los Angeles. Mr. Kinne states, however, that this cannot be, as the pest is an acarus, and unprovided with any piercing apparatus calculated to penetrate the body or root of the tree. He thinks, therefore, they are the result of the disease, the cause of which must be looked for farther.

From Dr. J. H. Wythe, we received, March 16th last, a communication descriptive of two forms of amplifiers, one of which, however, was soon pronounced by Mr. J. Edwards Smith to be similar to those made by Mr. Tolles for several years past. It is justice to Mr. Wythe to say that the fact of either Mr. Tolles or Mr. Zentmayer having made these instruments was new to him, and that so far as he was concerned the invention was original. Of the other amplifier, which he considers equal to the first in power and efficiency, I believe no one disputes his claim of having originated it. For a description of it I must refer you to our proceedings of that meeting.

From Mr. Hanks we have had two papers, presented in the form of reports, upon subjects which had been submitted to him for examination. One of these related to a sample of San Diego water, the excellence of which, for domestic purposes, he seriously questioned, owing to the large quantity of ammonia it contained, and which he thought might have been derived from decomposing organic animal matter. The other was upon a sample of so-called "silver mud," which it was represented, had been brought from Oregon, where it existed in enormous quantity. The sample submitted was exceedingly rich, assaying more than $3000 per ton, but the microscope revealed its factitious character, and gave the strongest evidence that another one of those swindling enterprises had been attempted, with which the "honest" up-country adventurer seeks to victimize the public, while continually professing such fear lest he should be defrauded by the San Francisco capitalist.

Many of you will recollect that at the last annual meeting I called attention to the fact that up to that time we

had been unable to accomplish all we had hoped for in the way of resolving diatoms with the new Tolles' $\frac{1}{10}$th, and that the last three upon the *balsam* Moller Probe Platte had baffled us completely. Since then, and thanks to the opportunity I had last summer of visiting Mr. J. Edwards Smith, as well as Mr. Tolles and Dr. Woodward, the resolution of these refractory tests has become a simple matter, and now many of us wonder how it was they ever appeared so difficult.

In speaking as I do with regard to resolving difficult diatoms, I would not have you think that I attach more importance to this matter than it really deserves, nor would I for a moment propose it as an end for anything more than to exercise the student in the manipulation of the microscope. In fact, as problems in mathematics teach us the use of figures and quantities while they improve the mental faculties, so this resolution of diatoms, which has been so much decried as being a sad waste of time and energy, gives to the manipulator a skill in the use of his instrument without which no success can be obtained. If our efforts were to end after having resolved a few diatoms, I should say our society was anything but a success, and although it might have afforded entertainment to its members for the last five years, it had failed to produce any good or lasting effect. To know how to use the microscope with skill is one thing, but to know what you see with it is another and a far more difficult subject, but it is also one which we may have by no means completely neglected. That we have a realizing sense of the importance of this branch, and that our progress has not been entirely in the way of material prosperity, I would present as an evidence the recent formation of a class in microscopy, under the instruction of our Librarian, Mr. X. Y. Clark, which, I consider, would have been an impossibility a few years ago, when so many of our members were interested in the microscope as a novelty, and, perhaps, without speaking offensively, more as a toy than as an instrument with which to acquire real knowledge and instruction.

And now, gentlemen, as my term of office comes to a close, I wish again to thank you and my associates on the Board of Trustees for the hearty support I have always received in my efforts to secure the prosperity of this society, but it is impossible for any one who has not oc-

cupied the position that I have to fully appreciate how much of its present success is owing to the untiring devotion and business capacity of our two Secretaries and Treasurer, whom, I trust, will receive at your hands the recognition to which they are so justly entitled.

New York, May 8th, 1877.

J. A Thacker, M. D.,
Editor Cincinnati Medical News.

Dear Sir—In the March number of the Cincinnati Medical News, there appears an article by Dr. J. Gibbons Hunt, contrasting the merits of the various microscopes exhibited at the International Exhibition at Philadelphia, last year, to which is added the following foot-note:

"It is stated in the *Naturalist* for December, that a firm from Rochester, New York, hinged the sub-stage bar at the level of the 'object,' but the small stands exhibited by said firm at the *opening* of the exhibition were not so made, nor had they any facility for registering obliquity. The firm in question did not grasp Zentmayer's idea at all, and hence can justly claim no priority of invention."

As we are the only firm from Rochester that exhibited microscopes at the Centennial, we suppose that we must, of necessity, be "the firm in question," we therefore claim your kind permission to correct the above statement.

In the first place, we are not aware that in Mr. Zentmayer's exhibit there were at the *opening* of the exhibition any microscopes with the arrangement alluded to,—at least in this respect we labor under the same disadvantage that Dr. Hunt apparently labors under, in regard to the microscopes exhibited by us,—we did not see any of Mr. Zentmayer's microscopes that had the arrangement mentioned. But we are fortunately in a position to offer *very* positive evidence that microscopes of *our* make, having the diaphragm attached to a swinging mirror bar, the latter hinged in the plane of the object, were at the Philadelphia Exposition at the *opening* of the same. We therefore were not under the necessity of *grasping* the ideas of either Mr. Zentmayer or anybody else. We merely realized our own.

As Dr. Hunt refers specially to our *small* stands, we may, perhaps, be allowed to say that we never apply this

device to our small stands, one great object in the construction of instruments of this class being simplicity and low price.

By inserting the above correction in your valuable journal, you will greatly oblige Yours, respectfully,

BAUSCH & LOMB OPTICAL CO.,

Of Rochester, N. Y.

THE BAUSCH & LOMB OPTICAL CO., whose advertisement appears in the MEDICAL NEWS, have been improving their microscopes. This firm is now ahead of all competitors in the cheapness and excellence of their work. There will be no occasion in the future to send to Europe to obtain microscopical work of a good quality at a low rate. The work of this company is cheaper and better than any made across the waters. For instance, they make an "Educational Microscope," furnished with a B eye-piece, and having a 2 inch and ½ inch objective, magnifying from 35 to 140 diameters, for $30. It has a japanned cast iron base, with finely finished brass pillars, and coarse and fine adjustment. The power is sufficient for nearly all botanical and entomological researches, and for very many of the uses of the physician. Their "Student's Microscope," is an elegant instrument with a very delicate fine adjustment; has A and B eye-pieces; and is furnished with a three-fourths inch and a one-fifth inch objective—magnifying from 50 to 350 diameters. The one-fifth resolves p. angulatum beautifully. This instrument will fulfill every want of the physician and histologist. The "Professional Microscope" (No. 50) is the largest of all their stands. It is made entirely of brass, and is highly finished. Besides a number of accessory apparatus, which we have not space to describe, it has three of their new periscopic eye-pieces, giving a very large and flat field, two inch, three-fourth inch, one-fifth inch, and one-eighth inch (the latter immersion) objectives. Price $140. This is a very elegant instrument indeed, and we would be glad to describe its many admirable points in detail, but we have not space. It would be regarded remarkably cheap at $200.

The objectives of this company are made by Mr. E. Gundlach, the eminent German maker, whose lenses gained such celebrity throughout Europe. They are most remark-

able for their fineness and cheapness. For instance, the $\frac{1}{5}$th, 100° angle of aperture, (non-adjusting) resolving p. angulatum and higher tests with ease, is quoted at $15—with adjustment, $18; $\frac{1}{6}$th, 120° angle, with adjustment, $20. The latter resolves the longitudinal lines of s. gemma and other very difficult tests. We make these statements from our own trial of the glasses, and not from that of others, as in the case of the Spencer objectives, which we found on testing them ourselves to fall very short of possessing the qualities ascribed to them.

Mr. Gundlach will undoubtedly establish a new era in the manufacture of microscopic objectives in this country.

For the benefit of our subscribers we will quote the price of a number of the other Bausch & Lomb objectives made by Gundlach. Four inch, 6° angle, $8; two inch, 12°, $6; one inch, 20°, $6; three-fourths, 27°, $8; half inch, 40°, $8; one-third, 55°, $10; one-eighth, 170°, (immersion, non-adjusting,) $20; one-eighth, 170°, (dry, with adjustment,) $24.

Proceedings of the Highland County Medical Society.

This Society met at the Court House, in Hillsboro, Ohio, on Thursday, the 12th of April, 1877, at 10 o'clock A. M., Dr. S. J. Spees in the chair.

The minutes of the preceding meeting were read and approved. The election of officers, to serve for the ensuing year, being the first business in order, resulted as follows:

Dr. S. J. Spees, Hillsboro, President

Dr. J. L. Wilson, Greenfield, Vice-President.

Dr. W. W. Shepherd, Hillsboro, Recording Secretary.

Dr. F. M. Thomas, Samantha, Corresponding Secretary.

Dr. R. C. Russ, Hillsboro, Treasurer

Drs. Shepherd, Wever, and Russ were elected a Board of Censors.

Drs. Dwyer, Spear, and Whisler were elected the Committee on Admission of Members.

The names of Dr. J. F. Blair, of Marshall, and Dr. C. H. Lee, of Buford, were presented to the Committee of Admission, and upon a favorable report from the Committee, were admitted as members.

The following delegates to the Ohio State Med. Society

were elected: C. C. Nixon, M. D., Hillsboro, R. C. Russ, M. D., Hillsboro. Alternates: W. W. Shepherd, M. D., Hillsboro, W. S. Patterson, M. D., Hillsboro.

Dr. F. M. Granger read an essay on the Progress of Medical Science, which elicited considerable discussion.

The report of the committee on Pauper Practice was received, and the committee continued.

Drs. Achor, Russ, Trimble and Shepherd presented reports of cases of nervous disease, the diagnosis and treatment of which are not as well understood generally as they should be. Lively discussion followed.

Drs. Spear and Whisler were appointed Essayists for the next meeting.

Dr. W. H. Wilson was appointed to prepare a report upon surgery, and Dr. R. T. Trimble to report upon the prevailing diseases of his locality.

Drs. P. H. Wever and F. M. Granger were appointed to report upon new remedies.

The meeting was largely attended, and a great deal of interest was manifested throughout.

Adjourned to meet in Hillsboro, Thursday, July 12th, 1877, at 10 o'clock, A.M. F. M. THOMAS, M. D.,

Corresponding Sect'y.

A New Remedy, called Digestine.

By A. F. SHELLY, M. D., of Philadelphia.

This is obtained from the gizzard of the domestic fowl (chicken), and is a specific for vomiting in pregnancy. I have used this remedy for twenty-five years, and it has never failed. It is also the most powerful and reliable remedy for the cure of indigestion (dyspepsia) and sick stomach caused from debility of that organ. It is useful in all cases where the pepsins and pancreatines are used, but with much more certainty of its good results, for it puts all those preparations, in my experience, in the background.

In complicated affections of the stomach, such as inflammation, gastralgia, pyrosis, etc., it may be combined with sub-nitrate of bismuth and opiates; and in diarrhea and cholera infantum with astringents, both vegetable and mineral. I have given the article to several prominent physicians, who have used it with the happiest re-

sults, among whom I may mention Professor E. Wallace, of the Jefferson Medical College; he gives me the result of seventeen cases as follows:—

In vomiting of pregnancy, out of nine cases he cured six, and palliated two, and in one case the remedy was not taken according to direction, and therefore had no effect.

He used it in seven cases of sick stomach caused by chronic inflammation of the uterus; cured five, and two remained doubtful. He also used it in a case of very obstinate sick stomach, caused by an irreducible hernia, and says this was the only remedy that gave any relief.

We, who have some experience, all know that vomiting of pregnancy is a sore affliction, and in some cases almost unendurable, nay, indeed, putting life in jeopardy; but in digestine we have a remedy which will prove to be a great blessing to mothers, who, as yet, think vomiting must be endured as a natural consequence.

If I am able, by this publication, to induce the medical fraternity to make use of the remedy, I am positive that a great boon will be conferred upon a class of sufferers who claim our sympathy.

The dose is from five to ten grains, hardly ever more than five, except in obstinate cases. For children, from one to five grains. My mode of administering it is in a spoonful of water or tea, or it may be strewn on a piece of bread and covered over with a little butter; it is, however, nearly tasteless. In dyspepsia and in vomiting of pregnancy, I direct it to be taken half an hour or so before each meal. In other affections of the stomach and bowels, every two to four hours. I give it uncombined, except in complicated cases, as heretofore mentioned.

The methods by which this principle can be obtained from the viscus are various. When I commenced to employ it, I used it in rather a crude state, by pulverizing the lining membrane of the gizzard; but it requires too much care and precision in the drying and cleansing operation in order not to destroy its virtues. There is also great inconvenience in obtaining the viscus during the heat of summer and extreme cold of winter, as temperature is one of the main things to be observed in order to preserve its efficacy, purity and sweetness. Later, finding this mode of preparation unsatisfactory, and inconvenient for the above reasons, I consulted with Wm. R. Warner & Co.,

1228 Market street, Philadelphia, who have prepared a form, designated digestine; its purity, and also its good effects, I can vouch for.

The Function of Digestion in its Relation to Health and Disease.

By ALBERT D. ELMER, M. D.

Digestion has been divided by Physiologists into that of Gastric or Stomach, and Calorifacient or Intestinal.

We will first trace digestion from insalivation to its final digestion in the intestines, and by this means will more clearly understand what is required for the healthy performance of this important function, so that the system may receive the most benefit therefrom, with a short exposition of the principles upon which malassimilation and indigestion of the food are based.

HEALTHY DIGESTION—The food is first mixed by mastication with the saliva which is secreted by three pairs of glands, namely the parotid, submaxillary, and sublingual; there is also a fluid secreted by the mouth called buccal mucus, which plays an important part in the mixing and digestion of food.

The constituents of saliva are too well-known to need repetition, suffice it to say that its principal action seems to be to aid digestion in the stomach and to change starch into sugar.

GASTRIC OR STOMACH DIGESTION.—The food thus prepared by mastication and insalivation is passed into the stomach. Entering that organ it is subjected to the action of the gastric juice exuding from the mucous membrane. "This juice is a transparent liquid, of a pale yellow color, and of a saline and acid taste; it is much heavier than water (Sp. gr. about 1020), and it contains from 2 to 3 per cent. of solid matter—about 1.7 of which is a remarkable nitrogenous organic body, called by Schwann, its discoverer, *pepsin*.

Its peculiarity is, that in the presence of an acid it converts almost every description of albuminous and fibrinous matter into a soluble form of albumen, called by Lehmann *peptone*, and by Mialhe *albuminose*, which differs from common albumen in many particulars. It is, for example, more liquid, it is not coagulated by heat, nor by weak

spirits, nor by acids, nor by most mineral salts; it is not very prone to decomposition; and it is capable of dialysis, that is, of transudation through animal membrane, and therefore of absorption, which albumen is not. The digestive power of pepsin is very great, for Wasman found that an acid liquid containing only one part of it in 60.000 of the solution—that is about a grain in a gallon—was capable of dissolving meat; and Lehmann ascertained that 100 parts of the gastric juice of a dog would digest 5 parts of cogulated albumen.

The nature of the acid found in gastric juice is generally conceded to be lactic acid, but some authors have asserted it to be free hydrochloric acid, but the evidence is strongly in support of the former. "Pepsin like diastase is rendered inert by a temperature of 120° to 130° F."

On the deposit of food into the stomach a movement of translation is given to it by the contraction and relaxation of the muscular coat, thoroughly mixing the food with the gastric juice, and as food is digested it is carried into the intestine in the form of chyme.

Fluid Extract of Ergot in the Treatment of Chronic Diarrhea and Incontinence of Urine.*

By Theo. M. Wittkamp, M. D.

Case I. Charles E., age 5, came under my charge November 25th, 1876, for variola. During convalescence he suffered from an ulcerative sore throat and two large abscesses of the leg. On Dec. 27th he was taken with diarrhea. He was at this time very anæmic, and so weak that he was unable to sit up in bed. The tongue was heavily coated with a white fur; abdomen protuberant and tympanitic; appetite poor; pulse 90, weak and irregular. He had from nine to twelve stools a day, the passages being thin and of a dark color. Ord. ℞ tr. opii. camph. ʒiij; mist. cretæ ℥ij. M. S. ʒj every three hours. Port wine, beef tea, and milk.

Dec. 28th. Ten stools—treatment continued.

Jan. 1st. No great change. Eight stools to-day. Ord. ℞ tr. opii. ʒj; bismuth subnit., pepsin āā, ʒj; aq. cinnamoni ℥jss; spr. simpl. ℥ss. M. S. ʒj; every 3 hours.

Jan. 4th. Great tenesmus. Stools contain much mucus. Ord. ol. ricini.

* Reported for the Cincinnati Medical News.

Jan. 6th. To-day the bowel is forced down by the straining efforts. Ord. suppositories of morphia and tannic acid.

Jan. 10th. Five stools to-day. Ord. tannic acid internally.

Jan. 13th. Six stools. Ord. ℞ ext. ergotæ fluid. ʒj; syr. simp. ℥ss; aquæ dest. ℥jss. M. S. ʒj every three hours.

Jan. 15th. Not so much tenesmus. Four stools yesterday. Treatment continued.

Jan. 17th. One stool to-day.

Jan. 20th. One stool to-day—natural. Stopped ergot.

Jan. 28th. Discharged well.

March 1st. The child is fat and hearty, and has had no return of the diarrhea.

Case II. Mrs. U. came under treatment Jan. 19th, 1877, for chronic diarrhea, which she had had for over two years. She was under treatment during the entire period. Present condition: anæmic; tongue coated; appetite variable; has from four to eight stools a day. Ord. bismuth and tr. opii. Milk diet.

23d. Six stools to-day Ord. in addition to the above, acidi tannici gr. iv every 3 hours.

24th. Five stools to-day.

25th. Ord. ℞ ext. ergot fl. ʒiii; syr. simp. ℥ss; aquæ ℥jss. M. S. ʒj every 3 hours.

29th. Two stools.

30th. Two stools. Has pain in ovarian region—discontinued the ergot.

Feb. 1st. Four stools—returned to the ergot.

Feb. 28th. Have not seen the patient for four weeks until to-day. Says she got well on the last bottle of medicine, and now has one perfectly natural stool per diem.

Case III. Baby R. Had been under treatment all summer for entero-colitis.

Sept. 1st, 1876. Ord. fl. ext. ergot gtt. iij, every three hours. At this time the infant was reduced almost to a skeleton, and the discharge from the bowels was nearly continuous.

Sept. 3d. Seven stools.

Sept. 10th. One stool.

Sept. 15th. Discharged well.
March 10th, 1877. No return of the diarrhea.

CASE IV. June, 1876, Mrs. G., age 43. Troubled with incontinence of urine. Ord. fl. ext. ergot gtt. v four times a day, with instructions to pass her urine at regular intervals. Patient was discharged entirely recovered after fourteen days of treatment.

CASES V and VI. Mrs. B. brought her two children to my office, one aged two years, the other four. Both wet the bed every night. Much treatment and many appliances had been tried but without benefit. Ord. fl. ext. ergot gtt. iij. ter in die. In the next week the children wet the bed three times. In three weeks they were entirely cured.

I have used the ergot in two other cases of enuresis with success.

Gleanings.

PURPUREA HEMORRHAGICA.—In his investigations on the use of ergot in purpurea, Dr. Duncan Bulkley contributes a valuable addition to the treatment of this disease. He reports a number of cases in which the benefit from the use of ergot is prompt and gratifying. Dr. Bulkley claims that in purpurea the action of ergot is very manifest, causing immediate cessation of the cutaneous and other hemorrhages. He prefers the hypodermic method of administeaing either of the fluid extract of ergot or of ergotin; of the former, ten to thirty minims; of the latter, two to four grains, two or three times a day.

TINCTURE OF CANTHARIDES AND CHLORAL IN ENURESIS.—Dr. George N. Nonette, of New Orleans, writes to the *American Practitioner*, stating that he has found a combination of tincture of cantharides and chloral extremely useful in the treatment of enuresis, as it re-establishes the tonicity of the vesical sphincter, and modifies the excessive sensibility of the muscular coat of the bladder. Cantharides, in appropriate doses, will relieve the strangury often present in cystitis. The chloral considerably modifies the action of the cantharides.

Do Beer Drinkers Have Phthisis?—We can call to mind several instances in which the free administration of alcoholic stimulants has had a marked effect in retarding the progress of phthisis, and no doubt there are many practitioners whose experience has led them to form a similar favorable opinion of them. *Apropos* of this question of the utility or not of spirituous or malt liquors in phthisis, it has been supposed that publicans are peculiarly exempt from this disease. Many years ago, Dr. Adkinson, physician to the Wakefield Dispensary, published some observations on the "Comparative Exemption of Publicans from Phthisis," in which he showed a general mortality in the above town, among adults, from phthisis, of rather less than 1 in 3, and in publicans 1 in 12½. "Now," he says, "allowing great latitude for mistakes, still the mortality by phthisis, in publicans, is comparatively small. What a more extensive investigation would prove it would be difficult to say, but there is here sufficient to demand further inquires."—*Medical Press and Circular*.

The Voices of Animals.—Professor Landois, of Freiburg, says the *Medical and Surgical Reporter*, has lately published an interesting work on the "Voices of Animals," which affords additional evidence of the universality of vocal sounds among the lower forms of animals, including the mollusca. The author considers it as beyond all question that ants possess a vocal speech, inappreciable by human ears, by which they are enabled to exercise those higher mental faculties to which they owe the development of the advanced social organization which they exhibit in their communities.

Basedow's Disease in a Child.—Chovsteck describes (Medizinskoie Obozreinie, April, 1876), a case of Basedow's disease occurring in a girl, 12 years of age, whose parents had always been healthy. The patient had always enjoyed good health, though she was paler than her sisters. During the course of the last two years, the child gradually became more pallid, readily became fatigued, and frequently complained of pain in the chest. One month previous to entering the hospital, her mother noticed a swelling of the neck and projection of the eyes. Cardiophthalmus was never noticed. On entering the hospital Dr. Chovsteck noticed a remarkable protrusion

of the eyeballs; the superior palpebræ were removed two or three lines from the cornea, and did not follow completely the movements of the eyeball upward and downward; the pupils were moderately dilated and reacted. The carotid and thyroid arteries were dilated, and pulsated more strongly than usual. The thyroid gland was remarkably increased in size; the cardiac impulse was strong, and extended over several intercostal spaces. The heart-sounds were normal. Other organs healthy. The patient was treated several days with a weak continuous current, three minutes at each seance. No improvement noticed. There was a pulsation of the pulmonary artery, probably due to hypertrophy of the right ventricle.—*N. Y. Med. Jour.*

Extirpation of the Rectum.—Recently, at the Pennsylvania Hospital, Dr. R. J. Levis performed extirpation of the rectum for epithelial cancer. Three inches of the entire diameter of the rectum was removed, including the sphincter and anus. One straight incision was made from the coccyx along the raphe of the perineum, the rectum was dissected from the urethra, prostrate and base of the bladder, drawn down and excised. Less than an ounce of blood was lost, and the patient, at last accounts, was doing well. This is, we believe, the third time this operation has been performed in America, although Billroth, of Vienna, has familiarized it to the German profession.

Cleopatra's Needle.—This celebrated obelisk, which was many years ago presented to the English nation, is about to be removed from the sands of Egypt and erected on the Thames Embankment. The expense of transportation will be borne, it is stated, by "a distinguished and public-spirited surgeon," who does not wish his name made public till the work is accomplished. It is stated also that Mr. Erasmus Wilson is the public-spirited surgeon aforesaid.

Torsion of Arteries.—M. Tillaux, before the Surgical Society of Paris, read a paper on the torsion of arteries, in which the following conclusions were reached:

1. Torsion is applicable to arteries of all calibers, and more especially to large arteries.

2. One pair of forceps only is necessary for the operation, whatever may be the size of the artery.

3. The artery ought to be seized with the forceps obliquely, and not in its continuity, in such a way as to thoroughly include in the fangs of the forceps the three coats in their entire width.

4. Torsion ought to be carried as far as the complete detachment of the part seized by the forceps.

5. The turning back (*refoulement*) of the tunics toward the heart, advised by Amussat, and the limited torsion recommended by Amussat and the English surgeons are useless.

6. Torsion is applicable to atheromatous or inflamed arteries. It is a valuable means for checking hemorrhage at the bottom of wounds.

7. It favors the immediate union of wounds by the absence of all foreign bodies.

8. There is as much safety against primary hemorrhage with torsion as with the ligature.

9. It affords greater safety against secondary hemorrhage than does the ligature.

Iodoform Ointment in Burns.—Of all local applications in the experience of the writer, iodoform, prepared with extract of conium and spermaceti ointment, with a small portion of carbolic acid, appears to meet the several indications best. This agent acts as a certain and most effective sedative on the painful and irritable exposed surface, and at the same time as an antiseptic. It reduces irrition, inflammation, and suppuration, when in excess, in a remarkable manner. It converts a most painful and irritable wound into one comparatively painless with promptness. This remedy is also an excellent promotive of healthy action and of the healing process. I have experimented with iodoform ointment in these cases repeatedly, and always with the same pleasant result. The use of this preparation has another advantage; it renders the constant use of anodynes unnecessary. The following formula has been the best.

℞	Iodoformii, - - - - - - -	ʒij.
	Unguent. cetacei, - - - -	℥i.
	Ext. conii, - - - - - - -	ʒjss.
	Acid. carbol, - - - - - -	gtt. x. M.

This ointment is spread twice daily on soft linen, and applied over the inflamed surface, and then enveloped in oil silk. No other dressing is necessary. The only

objection to the use of this remedy is its peculiar odor. In those cases of burns attended with great *dryness* of surface from destruction of vitality and want of exhalation, the wound, before being covered with the iodoform ointment, should be coated over with the common linimentum calcis. This affords a soft and moist dressing, which in nowise interferes with the action of the iodoform. —*Edinburgh Medical Journal.*

COURT APPOINTMENTS.—The vacancy caused by the lamented death of Sir William Ferguson, Sergeant-Surgeon to the Queen, has been conferred on Sir James Paget, and the appointment of Sergeant-Surgeon Extraordinary to her Majesty has been given to Mr. Prescott G. Hewett, F. R. S., President of the Royal College of Surgeons: and Mr. Eric Eichsen, F. R. S., has been appointed Surgeon Extraordinary to her Majesty.

NEW INSTRUMENT IN DIAGNOSIS.—Dr. Edgar Holden, of Newark, introduces in the *New York Medical Record* a new instrument for the early detection of disease of the lungs when the symptoms may be shown. It consists of a soft rubber tube, $\frac{5}{8}$ of an inch in internal diameter and two feet long, with simple end pieces of thin metal. When blown into with a little force a rushing noise is produced at its extremity. Forced inspiration gives the same sound. The ear of the physician being applied to the chest, the patient is directed to respire through the tube. The respiratory murmur is singularly magnified. The exaggeration of the internal sounds in their persons is such that comparison of the two sides is necessary to prevent misinterpretation. Local considerations and sound cavities are easily detected. The instrument is called a "resonator."

NEW THERMO-CAUTERY.—Dr. Paquelin (*Lancet*, January 20) has devised a new apparatus for thermo-cautery, which is simple, handy and efficient. It consists of a hollow handle, insulated with wood to protect the hands from the heat, and is furnished with movable platinum heads, corresponding in form to the cautery irons found generally useful. Into these cauteries, which are hollow, after they have been heated to blackness in the flame of a spirit lamp, a blast of benzoline vapor is introduced by means of an ordinary spray bellows, which at once raises

to and maintains them in a state of vivid incandescence. The heat thus produced can be kept up for an indefinite time by slightly compressing the bellows occasionally.—*Med. Record.*

Book Notices.

THE MICROSCOPIST. A Manual of Microscopy and Compendium of the Microscopic Sciences, Micro-Mineralogy, Micro-Chemistry, Biology, Histology, and Pathological Histology. Third edition. Re-written and greatly improved. 205 illustrations. By J. H. WYTHE, A. M., M. D., Prof. of Microscopy and Biology in the Medical College of the Pacific, San Francisco. 8vo. pp. 259. 1877. Philadelphia: Lindsay & Blakiston. Cincinnati: R. Clarke & Co.

As the microscope becomes more and more popular, works upon the microscope increase in number. The list of them is already large. Among the most valuable are those of Carpenter, Beales' two large works, Hogg, Quekett, Frey, Harley & Brown, Clarke, Cooke, Donkin, "The Micrographic Dictionary," Schafer, Macdonald, Schrack. The work before us of Prof. Wythe will compare very favorably with any of them.

Prof. Wythe's work will be found especially advantageous to those whose means will not afford them to possess many works on the subject of microscopy. It is not confined to any particular department, but embraces quite a number, as the microscope in mineralogy and geology, in chemistry, in biology, in vegetable histology and botany, in zoology, in animal histology, in practical medicine and pathology. Besides, there are a number of chapters devoted to a description of the microscope, object glasses, eye-pieces, microscopic accessories, etc.

We can very cordially recommend the work to all engaged in the study of microscopy. With this work and a good microscope, like Bausch & Lomb's student's microscope, costing but $50, the student is prepared to enter upon the study of things of a world before unseen of the most enchanting character, and which will yield him knowledge of the greatest value. Even with Bausch & Lomb's thirty dollar microscope a very large portion described in the work can be studied.

The fact that the work has reached a third edition is evidence that it is held in high esteem. In preparing this last edition, we are informed that the work has been almost entirely re-written, which has resulted in some enlargement of it, although it has been the effort to concentrate the material into the smallest compass consistent with perspicuity.

Prof. Wythe cannot be a very attentive reader of the MEDICAL NEWS, or he would certainly have exhibited himself rather more abreast of the present knowledge of what modern objectives are capable of performing in the way of resolving power, and would not have mentioned as a feat that Hartnack's No. 10 immersion system had resolved the 15th band of Nobert's test plate, and that Dr. Woodward had resolved the lines of amphipleura pellucida with Powell & Lealand's $\frac{1}{16}$th immersion, "using oblique sunlight through a solution of ammonia-sulphate of copper." The NEWS long ago announced that Mr. Tolles, of this country, makes a $\frac{1}{4}$th that will resolve the *nineteenth* band of Nobert; and a $\frac{1}{6}$th and $\frac{1}{10}$th that will exhibit the lines of a. pellucida by simple lamplight. The NEWS would also have told him that the S. F. M. S., to which his book is dedicated, has a $\frac{1}{10}$th which will do the latter.

THE CRUISE OF HER MAJESTY'S SHIP "CHALLENGER."—Voyages over many Seas, Scenes in Many Lands. By W. J. J. SPRY, R. N., with maps and illustrations. 12 mo., pp. 388. New York: Harper & Brothers. Cincinnati: R. Clarke & Co. 1877.

As stated in the preface, the important objects for which H. M. S. *Challenger* was placed at the disposal of a scientific staff under the direction of Prof. Chas. Wyville Thompson, F. R. S., the gratifying results obtained by the full investigation of the bed of the ocean, and the vast amount of information gathered by visits to distant lands very rarely explored, render the cruise of the *Challenger* highly interesting and instructive to the whole public—scientific and general.

The chief interest connected with this narrative will be the vast extent traversed in the pursuit of knowledge, which admits of the combination in this volume of the general outline of the manners and customs of nations and tribes rarely visited, and descriptions of scenery under

every condition or temperature, from the fiery tropics to the ice-bound Antarctic regions, thus combining in the work a fund of information that has been brought together through special aid of the British government, granted to the committee of the royal society, and now dedicated to the public use.

The *Challenger* was placed in commission 15th Nov., 1872, for the purpose of proceeding upon a voyage of scientific discovery and deep-sea explorations in the Atlantic, Indian, and Pacific oceans, descending into the Southern or Antarctic ocean as far as the ice would permit. There were provided numerous instruments for dissection and microscopic observation; long tubes for preserving rare specimens; harpoons, and many ingenious devices for entrapping and securing larger game than the dredge could possibly furnish.

The work was written for popular reading, but the scientist, too, will find it of the most interesting character. We cordially recommend it to our readers.

In some future issue we will give some of the scientific results of the explorations.

Editorial.

WOMEN'S CHRISTIAN TEMPERANCE UNION OF PHILADELPHIA.—This organization believing that among many of the upper and middle classes of society there are women who have fallen into the habit of drinking, who would gladly be delivered from this temptation, yet have not the courage in themselves to reform, there has been established in Philadelphia a home for the reception of those who are willing to place themselves under restraint, and where their physical condition will be cared for by a resident female physician, Dr. A. V. SCOTT, who makes an especial study of these cases. The Home is to be exclusively for a class of women for whom the other reformatory homes of cities would be entirely unsuitable.

Payment for board and medical attendance is modified according to the circumstances of the patient.

It is desired that patients remain in the Home for three months, as making the effectual work of reform more sure. It will be the effort to make the Home as com-

fortable and attractive as possible, having lectures and entertainments certain evenings in the week.

Application for admission may be made at the Home, No. 220 North Thirteenth Street, Philadelphia.

President—Miss Sarah Cadbury, 1530 Cherry Street.

Secretary—Mrs. H. M. Troth, 2018 Race Street.

Removal of Foreign Bodies from the Ear.—Let the surgeon take six inches, or as much as he pleases—it is always handy and plenty of it—of horse hair, double it into a loop; then having the patient placed on his side, pass the loop into the ear as far as it will go; turn it gently, and at the first or second withdrawal the foreign body will come out in the loop. It gives no pain and cannot do damage.

Choosing a Physician.—"To choose a physician," as Lady Mountcashel has well remarked, "one should be half a physician one's self; but as this is not the case with many, the best plan which a mother of a family can adopt is to select a man whose education has been suitable to his profession, whose habits of life are such as prove that he continues to acquire both practical and theoretical knowledge, who is neither a bigot in old opinions nor an enthusiast in new; and, for many reasons, not the fashionable doctor of the day. A little attention in making the necessary inquiries will suffice to ascertain the requisites here specified; to which should be added what are usually found in medical men of real worth—those qualities which may serve to render him an agreeable companion; for the family physician should always be the family friend."

American Gynæcological Society.—The second annual meeting of this society will be held in Boston, on May 30th. The annual address will be read by the President, Dr. Fordyce Barker, of New York.

Union Medicale et Scientifique du Norde etc., is the name of the new journal published in Rheims. It is issued monthly. Price six francs.

Resignations in the Philadelphia Medical Schools.—Dr. Francis G. Smith has resigned the professorship of the Institutes of Medicine in the University of Pennsylvania,

and Dr. B. Howard Rand that of chemistry in the Jefferson Medical College. We understand that the vacancies thus created will not be filled immediately, so that time may be afforded to gentlemen who desire to become candidates to make known their qualifications.

Kentucky State Medical Society.—The annual meeting of this society was held at Louisville, on the 3d of April, Dr. R. W. Gaines, of Hopkinsville, President, in the chair. The following officers were elected for the ensuing year: President, Dr. L. P. Yandell, Jr., of Louisville; Vice-Presidents, Drs. J. Dismukes, of Mayfield, and W. B. Rodman, of Frankfort. Frankfort was chosen as the place of meeting in 1878.

Office Practice.—The Philadelphia correspondent of the Boston *Medical Journal* writes: "Some of us have this week been newly taught a lesson not to be easily forgotten. I was one of the victims. A colored man came to my office with the request that I would visit a lady who was ill. I agreed to go at a certain hour. At that hour I was detained by office patients. The man came again to request me to hasten. I went soon after to the house to which he had directed me. No such lady as the man had named was known at this house, and I learned that I was the fourth physician who had called upon a similar errand. Returning to my office in a frame of mind common to dyspeptics, I was told that shortly after I went out the man had come a third time, saying that he had met me, and that I had sent him to my office to await my return, which would be in half an hour. The servant, deceived by his plausible manner, admitted him. His stay was very brief. He took property to the value of three hundred and fifty dollars. I went at once to our detective police, described the property, and the officers vindicated the high reputation of Mayor Stokely's police system by placing three hundred dollars' worth of the stolen articles in my possession within *fifteen hours*. The thief had made use of a pawnbroker, in whose shop the recovered property was found. Other physicians have been likewise victimized, but to what extent I do not know. This is a common form of thieving in Philadelphia, so that the stringent rule of doctors' houses is that not a soul, even

though he be a bishop, shall be admitted to the office during the absence of the physician, unless the servant keeps guard."

THE FILARIA HÆMETICA.—MM. Galeb and Pourquier have recently set on foot a series of investigations in the hope of clearing up the mode of origin of the nematoid worms in the blood of dogs. Among the autopsies performed with this end was that of a bitch with pup, whose heart was found crammed with adult filaria. The examination of the blood of this dog revealed, as is usual, the presence of thousands of the embryos of filaria. To the great astonishment of the investigators, however, the examination of the blood of the fœtus also revealed the presence of many of these embryos. This important observation, in their opinion, demonstrates that the embryos of the filaria, which swim about in the blood of the bitch, and are provided with a delicate, pointed extremity, are able to pierce the tissues of the uterus and make their way into the fœtal placenta, whence they are swept away by the sanguineous current of the fœtus. This explanation, founded upon a positive observation, destroys completely the theory of a verminous diathesis and of spontaneous generation, by which it has been hitherto sought to explain the genesis of these hæmatozoa.

C. Davaine, in his *Traite des Entozoaires*, says that the nematoid worms, which circulate in all the vessels of certain dogs, are probably the larvæ of the filaria hæmatica. MM. Galeb and Pourquier say that there can no longer be any question of this. When after a careful dissection, a microscopical examination of the genital apparatus of the adult female of the filaria hæmatica is made, it is easy to follow the development of the egg and the embryo in the ovary; free embryos, perfectly similar to those which circulate in the blood, are always found in the oviducts. The female of the filaria hæmatica is therefore viviparous. It is the belief of these observers that the embryos are never found in the blood of dogs, unless adult filaria be at the same time present in the right cavities of the heart or in the pulmonary artery. Hence the diagnosis of the latter may be made during life from the examination of a drop of the blood.

The female of the filaria may attain a length of twelve and a half inches. The male is smaller and more delicate;

it may be six inches in length. More than a hundred may be present in the same animal. Frequently they cause no symptoms at all; sometimes the symptoms are intermittent, and in other cases they cause dropsies or other affections which prove fatal.

A New Medical Journal.—We are in receipt of the first number of a new medical journal, commenced at Baltimore, entitled the *Maryland Medical Journal*, and edited by Drs. H. E. T. Manning and T. A. Ashby. It contains a number of valuable articles, and gives promise of being ably conducted.

A New Dispensatory.—We are pleased to observe the announcement that Dr. Stille and Professor Maisch have for some years been engaged in the preparation of a new Dispensatory. From the eminent fitness of these gentlemen there can be no doubt that the work will be of value to both the medical and pharmaceutical professions. Some friends are in error in supposing that the "National Dispensatory," on which Professors Stille and Maisch are engaged, has any connection with the project of Dr. Squibb.

Award to Messrs. Billing, Clapp, & Co., Boston.—The undersigned, having examined the products herein described, respectfully recommends the same to the United States Centennial Commission for Award, for the following reasons, namely:—

A very fine display of Chemicals, *especially* carbolic acid, propylamine [trimethylamine], chloride of propylamine, and also of Pharmaceutical Chemicals, such as citrates of iron and quinia, citrates of iron and manganese, citrates of bismuth and ammoninm, pyrophosphate of iron, bromide of potassium, bromide of ammonium, chromic acid, valerianic acid, and many others. *Commended for fine display and* EXCELLENCE *of chemicals.*

F. A. Genth.
[Signature of the Judge.]

Approval of Group of Judges.

J. Lawrence Smith.	F. Kuhlman.	Charles A. Joy.
P. De Wilde.	E. Paterno.	J. W. Mallet.
Dr. V. Wagner.		

THE

CINCINNATI MEDICAL NEWS.

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Original Contributions.

Notes of Treatment.

By R. B. ELDERDICE, M. A., McKnightstown, Pa.

CEREBRO-SPINAL MENINGITIS.

Patient, a girl, aged 12 years, was suddenly seized with vomiting, followed by a convulsive attack. When seen a few hours later, was suffering extremely from pain in spine and head, somewhat delirious, with considerable retraction of head and spine, rigidity of abdominal muscles. Four fatal cases of this disease having recently occurred in that neighborhood in the hands of three different practitioners, I at once concluded it was my turn to furnish the fifth. Knowing, from conversation with one of the attendants upon the other cases, that they had all been treated with quinia, in large doses, with opium and alcoholic stimulants, ice to the spine, and free mercurial purging, I avoided that medication, and prescribed ℞ tr. capsici; fl. ext. gelsem; āā f. ʒij. M.—Dose, eight drops every four hours, alternated with potass. bromid. gr. x. every four hours. Applied sinapisms whole length of spine, and to calves of legs, and cold water to head. When any indications of approaching convulsions, gave chloral in doses of gr. xv. to xx.—also same quantity each evening to secure sleep. No further convulsions, nor any vomiting after the second day of above treatment. Improvement was gradual, the opisthotonos and dilated pupils being the principal objective symptoms, aside from debility, during the second week of the illness. Patient not seen after the second week, but was kept on pil. phosphor. comp., and made a good recovery, the convalescence being slow. In a case recently reported in the

British Medical Journal, the patient, a boy, aged 6 years, recovered under hydrarg. cum creta gr. j. every four hours, for a few days, then three times a day, with potass. iodid. gr. ij.; potass. bromid. grs. iij. three times a day, and ferri iodid. and ol. morrhuæ during convalescence.

Tr. capsici, while acting as sedative to nervous system, has good effect in checking vomiting; the gelsemin., while being sedative and antispasmodic, aids the capsic. in its stimulant effect. Capsic. and gelsemin. are among our best remedies in many cases of disease of brain and spinal cord, and have frequently been used with marked benefit in spinal irritation and in sub-acute and chronic meningitis.

CHRONIC OVARITIS.

This, one of the most unsatisfactory complaints for a young physician to treat, (as well as for some older ones,) is rather frequently met with—more so in some localities than in others, I believe, and usually occurs in young unmarried women of nervous or nervo-bilious temperament, and is undoubtedly frequently connected with some degree of hysteria.

After treating a few cases, unsatisfactorily to myself, (and them, too, I suppose,) I began the use of fl. ext. gelsem. gtt. x., with ammon. bromid. gr. x. to xv., morning and evening; and have yet to prescribe these remedies for the case that was not materially improved or entirely cured in a comparatively short time.

Dysmenorrhea, or other complications require their appropriate treatment. Many cases of so-called ovaritis, (sub-acute or chronic,) are of a neuralgic character, and benefited by hypodermic injections of morphia and ergot, (fl. ext. in small doses.)

PHLEGMASIA DOLENS.

During the past year three well marked cases of this disease occurred in my practice.

One followed an abortion, at tenth week, in which the hemorrhage had been alarming, and, contrary to the usual termination described in "the books," suppurated; was lanced in the popliteal space, and again a few days later at inner side of ankle, more than a quart of pus being evacuated from each incision.

In the second case, five weeks had elapsed from date of

the confinement, when disease appeared, and in this case hemorrhage had been profuse after delivery.

In third case, the disease occurred three weeks after delivery, in case of entire placenta prævia in primipara, in which the operation of turning the child had been performed while the patient was under chloroform, and in which there had been excessive loss of blood from repeated floodings during the last two weeks of gestation, as well as during labor, before sufficient relaxation to admit of operative interference. These cases seem to uphold the theory that excessive loss of blood is predisposing, if not remotely, an exciting cause of this disease.

The treatment in all the cases was turpentine stupes, and warm water dressing,—opium sufficient to subdue pain and calm nervous irritation, good nourishing diet, with tonics and stimulants, as symptoms and condition of patient required. Nature is probably our best aid in these cases.

PUERPERAL MANIA.

A lady, aged 32, mother of four children, was delivered of her fifth child, 28th Feb., 1876, and two days later became furiously maniacal, and unmanageable, having homicidal tendencies. Sixteen months previously, on birth of her fourth child, she suffered similar attack, but not so severe in character, for which she had been treated with chloral and potass. bromid., with excellent results.

In last attack, these remedies failed to be of much use, and tr. lupulin, in f℥ij doses, with fl. ext. gelsem. gtt. viij. was given every two, three or four hours, as needed to produce calmative effect. In couple days these medicines seemed to lose their benficial effect. Patient was now freely purged by calomel and fl. ext. senna; the nucha freely blistered, and hypodermic injections of $\frac{1}{4}$ gr. morphia with tinct. aconit. rad. gtt. j. were used morning and evening, with the effect of controlling the maniacal excitement, though producing rather an unpleasant degree of narcotism the first few doses, which, however, passed by safely, and patient made a good recovery, having been deranged about ten days.

The probability is that another attack may be recorded in my case book ere long.

This patient's father was insane for a short time, a few years ago, but seems perfectly recovered.

Treatment of Paralyzed Muscles by Elastic Relaxation.

By JOHN VAN BIBBER, M. D.

Read before the Medical and Chirurgical Faculty of Maryland.

At the present time, when a new vigor seems to have been imparted to the study of the nervous system, I deem it peculiarly fit to bring to the notice of this Society some observations which have lately been made concerning the condition of muscles in various forms of paralysis.

And I do so more willingly, because it is evident to me that the morbid conditions ot the muscular system have up to this time been too little investigated, and I feel convinced that the day is not far distant when the nosology of muscular diseases will be very materially increased. Taking into consideration the fact that the muscular tissue constitutes nearly one-half the entire mass of the human body, or according to Ranke 45, and that the process of nutrition and assimilation is carried on to a great extent in this system, we must be impressed with the important influence which, either in health or disease, this large mass of tissue exerts on the economy. Indeed, Flint, in his *Physiology*, vol. ii, p. 449, says, "that the condition of the muscular system is an almost unfailing evidence of the general state of the body." To show clearly the practical importance of the theory which I shall here endeavor to develop, I would beg leave to call your attention briefly to the anatomy of muscular fibre, in order more intelligently to explain the curative action of elastic relaxation applied to paralyzed muscles.

According to Flint, voluntary muscles are made up of a great number of microscopic fibres, called primitive muscular fasciculi. The structure of these fasciculi is complex, but they may be divided longitudinally into fibrillæ, and transversely into disks, in such a manner as to render it doubtful as to what, strictly speaking, is the ultimate anatomical element of muscular tissue. A primitive muscular fasciculus runs the entire length of the muscle, and varies much in size in different individuals. As a rule, they are smaller in young persons and females than in adult males. As a muscle is better developed, so the fasciculi increase in size, and it is probably due to this fact, rather than to the formation of any new elements, that we have the enlargement of a muscle under constant

exercise. These fasciculi are gathered into bundles and surrounded by connective tissue; and a certain aggregation of bundles so formed constitutes a muscle.

The circulation in muscles is very abundant, and the capillary vessels are arranged somewhat peculiarly, and are the smallest in the whole body. According to Kolliker, when distended with blood, they are from $\frac{1}{4200}$ths to $\frac{1}{3700}$ths of an inch in diameter, and when empty their diameter is from $\frac{1}{7000}$ths to $\frac{1}{5500}$ths of an inch. The capillaries are distributed to each primitive fasciculus, and their long diameter follows the direction of its fibres.

Now, it is evident from this anatomical construction, that the diameter of these vessels is much influenced by the position of the muscle. If it be relaxed, the diameter of the capillaries would be greater; if it be stretched to any extent, the diameter would be very materially diminished. On the other hand, it is equally evident that in the contraction of a muscle the circulation is also influenced to some degree; but as that is not of as much importance in this discussion, it is only mentioned as a fact.

I would wish to call attention to the fact that a muscle is so formed, its fibre and circulation so arranged, that it cannot remain in a fixed position, contracted, relaxed, or stretched, for any length of time without suffering grave disturbances in its nutrition. Movement seems to be absolutely necessary for the healthy development of muscle, and hence we can readily infer that a certain amount of motion is essential for the well-being of the component parts of this tissue. Even a perfectly relaxed position, with the antagonistic muscles acting normally, I do not think could long be sustained without some interference to the circulation. If then a healthy muscle depends to such an extent upon the movement for the integrity of its condition, we can easily imagine that the loss of motion of paralyzed muscles is not an unimportant factor in their degeneration.

Therefore in some forms of paralysis, when a muscle, or group of muscles, is forced by its antagonists into an abnormal and comparatively fixed position, I do not think that treatment wise or efficient which only endeavors to cure the nervous lesion, or at best totally neglects the unphysiological condition of these paralyzed muscles. For in such a case of paralysis, we not only have the muscles incapable of receiving the influence of the will, but not

being capable of motion or contraction, they are injured, first, by the fibres themselves being intensely stretched; second, by the circulation being undoubtedly interfered with; third, by the commencing atrophy or degeneration which must accompany any continued diminution of the circulation.

To recapitulate the various disadvantages under which a muscle so affected is placed, I would say first, the loss of the nervous influence of the will; second, the inactivity of the muscular fibre; third, its stretched and elongated position; fourth, the contraction of the blood vessels, and consequent anæmia and loss of temperature.

Heretofore too little attention has been given to the treatment of the muscles themselves in some of the more curable forms of paralysis, and I refer with some pride to an article in the *New York Medical Journal*, May, 1874, that proposed a plan of treatment, which, if not entirely new, at least brought forward some new arguments and considerations in regard to a closer investigation of the condition of paralyzed muscles. Before attempting to call attention to the injurious way in which such stretching of the muscle may affect the ultimated distribution of of nerve-fibre, I will endeavor to show how the elastic relaxation of paralyzed muscles will better their condition and promote recovery.

In the article before referred to, in alluding to the use of an artificial extensor muscle in a case of lead paralysis, I give the following opinion of its advantages and usefulness: "Perfect relaxation of muscle by mechanical means would not, I am confident, accomplish the results I have seen from the use of this instrument, and at the same time would not give to the patient as useful a hand. For here, without having power in the extensor group, we simulate, as nearly as possible, nature herself; and in the daily uses of the arm, by alternate relaxation and contraction, we bring the muscles as near their normal movements as the deformity will allow. And I would place great emphasis upon this point, that in these changes of position we have changes in circulation; that when the muscle in intensely stretched, the capillary vessels are pressed upon and their calibre reduced; while on the other hand, in a relaxed condition of the muscles, nutrition can go on with less interference. Certainly in health, only by movement and exercise can we produce

developed muscle. Therefore, when the power of motion is lost, when paralysis has deprived any muscle of an element so important to them in their normal state, we should, in our treatment, endeavor to imitate their natural action as the surest means of bringing about recuperation."

The first example which will be brought forward as a successful proof of the efficacy of this treatment, is a case of ptosis that came under my observation at the New York Eye and Ear Institute. The patient had been under treatment for some weeks, but the paralysis was not in the least improved. My friend, Dr. John J. Mason, of the Department for Nervous Diseases of the Institntion, had tried as efficiently as possible the effect of faradization, with no resuit whatever. It occurred to me that if the stretched fibres of the Levator palpabræ superioris could be relaxed, and the lid kept up by an artificial levator muscle, that a great step would be made towards his recovery. Accordingly, a thin and elastic ribbon of India rubber was attached to the upper lid, at the highest point of its convexity, and as near to the lashes as possible, by means of minute strips of court-plaster, which, when dry, were painted over with collodion. The lid was then drawn up by this muscle to a natural position, and the ribbon attached by the same means to the forehead just above the eyebrow.

Conrad McEroe, aged 43, carver in a restaurant, stands much over hot dishes in carving, and is exposed to draughts. No syphilitic history, paralysis of lev. palp. sup. and rectus sup. Ptosis, probably of rheumatlc origin, or in other words "coup de vent." Has been treated for three weeks by electricity, and hydrarg. bi-chloride and potass. iodide, with no success. The first artificial muscle applied, remained on five days. The patient showed decided improvement. The next muscle remained on ten days, and the next three days. At each examination he was found to be improved, and after eighteen days of treatment it was found that his eye would remain two-thirds open, and that he could close the eye and open it to that extent an indefinite number of times. It was, however, thought best to apply it again, and by this means and the aid of electricity the affected muscle was soon entirely restored.

I had the pleasure of showing this case to the Society

of Neurology and Electrology of New York, and also mentioned it in the article before alluded to, in the following words: "The patient experiences much comfort from the appliance, as, the recti muscles being but slightly involved, he is rarely troubled with diplopia. The elasticity of the rubber allows the patient to close the eyes, but upon ceasing muscular effort the eye is again opened."

In this case the artificial levator had not only to overcome the antagonism of the orbicularis, but also the counteracting force of gravity, for the upper eye-lid of an adult is of some appreciable weight. I look upon this as a type case, for it had long resisted the treatment of electricity, and it was only after prolonged relaxation and weeks of artificial motion that the fibres of this muscle were able to resume their natural functions.

The case of lead paralysis in which I first used the artificial extensor muscle was also a very instructive one, showing the value of this treatment when all others had failed.

Frank Fitzimmons, age 45, painter; blue line on gums, and lead cachexia well marked. Has had colic, and paralysis of extensors has lasted eight months. Prognosis bad. Has not improved at all under constant electrical treatment. Extensors are entirely uselesss; and flexors, when motion is attempted, bend the hand at a right angle with the forearm. The temperature of the extensor surface of the arm is perceptibly diminished. The elastic relaxation was applied as I have described it in the *New York Medical Journal*, May, 1874, forming a very useful and efficient extensor muscle. He continued to wear this apparatus for about three months, and at the time of my leaving New York was able to resume light work, having full power over the extensors of the wrist, but not having yet fully recovered the use of the extensors of the fingers. I should not neglect to say that during this time the treatment by electricity was continued; but as he had so long resisted that treatment, and received no benefit from its use alone, I think his recovery may be truthfully attributed to the curative action of the elastic relaxation.

Dr. Detmold, *New York Medical Journal*, May, 1873, published a case of facial paralysis treated by an apparatus which, though it relaxed the muscles, was not elastic, and which was thought to have a curative effect on account

of the current of electricity that passed continually through it. It consisted of two different metals, made in the form of a double hook, one end to pass behind the ear and the other into the angle of the mouth. The hook behind the ear was armed with a small sponge, which was kept moist with dilute vinegar, and the one in the mouth obtained its moisture from the saliva. This instrument was tested by a galvanometer, and a perceptible current found to be generated by it. Dr. Detmold, in his article, questions whether it was the electricity or the relaxation that benefited this case so much.

I am inclined to believe it was entirely due to the relaxation, although it lacked the most importont element of elasticity. A small hook to hold up the angle of the mouth, attached by a band of rubber around the ear, is a much more effective apparatus; and it was tried several times at Dr. Seguin's clinic, and also at the Bellevue, but with what result I am unprepared to say. Dr. Detmold was kind enough to say in New York Academy of Medicine, that he thought the elastic apparatus would accomplish much more than the one he had first devised.

I will now come to the consideration of the nervous element of the treatment proposed and carried out in the cases just related. In paralysis of all kinds, heretofore, we have looked almost entirely to the lesion existing either in the nerve-centres, or in the course of the nerve some distance from its distribution to the affected muscles. Of course for purposes of diagnosis this is not only important but necessary; yet I would wish to show that no treatment should be governed by this idea alone, but that we must take into consideration the paralyzed muscles, and give them some share of attention.

The intimate anatomical relation existing between the ultimate nerve filaments and the muscular fibrillæ, is not only a strong argument for giving our treatment a local character, but it is a physiological fact which if overlooked would tend to retard beyond measure the recovery of the paralyzed muscles. If it can be shown that a nerve, besides the nutrition that it has from the circulation in its course, derives a separate and distinct source of nourishment from its distribution to the muscular fibre, it will be evident that any effort to better the condition of the muscles would be followed by corresponding improvement in the distal portion of the nerve. In a grave central

lesion, as we could hardly hope to effect any permanent relief, such endeavor would be of no avail. But in many cases of paralysis, especially such as I have related, I think the theory is one which should prove itself successful in practice.

The termination of the ultimate filaments of nerves in the fibres of muscular tissue is a subject that has given rise to much discussion. But whatever may be the explanation of the question, this fact is beyond all doubt, that the nerve-tissue and muscle-fibre are very closely and intimately connected, and that the nutrition of both these tissues as they merge into one another is probably carried on by the same blood-vessels.

In fact, it has been demonstrated by experiment, that if a nerve be cut some distance from its termination in a muscle, and its irritability exhausted, it will first show signs of returning irritability nearest its distal extremity. Herrman experimented upon the sciatic nerve of a dog, which he exposed high, and cut, and exhausted its irritability. The distal portion of the sciatic being separated from the remainder of the nerve, and entirely cut off from the spinal system, could receive no recuperative power from that source. Yet it was found after a time to have regained its irritability, and perceptibly in a greater degree nearest its distal extremity. The interesting question as to how this nerve was able to resume for a time its normal condition, and to give rise to natural phenomena, can only be answered by admitting that, after being exhausted and rendered completely incapable of reacting to the usual stimuli, it has recovered and been nourished from its distal extremity—whether through its ultimate connection with muscular fibre, or through a grosser circulation which exists between the muscular and nerve tissues.

If the inference drawn from this experiment be true, the local treatment of paralysis has been heretofore too much neglected, and a new method must be introduced, and a new hope inspired concerning the ultimate recovery of many forms of paralysis.

It is then a fallacious idea to think because the innervation of a muscle is cut off, that we should, therefore, wait until that necessary influence has been re-established before we could do anything to better the condition of the muscular fibre. Hence, I believe that in all forms of

peripheral paralysis, from injury, cold, toxic influence, and the like, where not being able to restore the nerve to its normal condition, if we can by mechanical means give the affected muscles, as nearly as possible, their natural motions, we prevent any further degeneration in the muscles, and actually improve the condition of the nerve or nerves.

There are two results to be derived from the course of treatment advised in this paper: first, the muscular fibre is improved, and its condition rendered more natural; second, through the improvement of the muscles, the distal extremities of the nerves are affected favorably; and finally, the whole part is placed in the best hygienic condition to receive the influence of the will, as soon as the lesion should commence to disappear.

It is to be hoped, that as more attention is drawn to this method of treatment, closer investigation in regard to the muscular system will be invited, and that the principles advocated in this paper, heretofore totally neglected, will prove our best means of relieving many forms of paralysis.

Report of the Montgomery County Medical Society, Pa., to the State Medical Society.

By Hiram Corson, M. D., Philadelphia, Pa.

Dr. G. P. Sargent writes:—

Diphtheria has been the only epidemic disease in the neighborhood of the dividing line between Delaware and Montgomery Counties this year, and the nasal passages have usually been involved, and this has been a marked feature. I have used a local application of lactic acid generally diluted with from four to sixteen times as much water, but occassionally without diluting, and sometimes employing a spray disperser when diluted, throwing it upon the part covered by the false membrane every two or three hours. I have used chlor. potassa internally, sometimes with tinct. chloride of iron, sometimes alone, and lozenges composed of bicarbonate or chlorate of potassa, sugar, acacia, and cubebs as follows: ℞. Potassa chlorat, ʒj; pulv. cubebæ, pulv. acacia, āā ʒss; sacch. alb. ʒj.—M. ft. lozenges No. 30, one every two or three hours. Brandy and quinine and ammonia are sometimes required, and I

have found this treatment very efficacious; the cubebs and lactic acid being specially important remedies.

No scarlet fever has appeared in my immediate vicinity this year, but it was seriously prevalent the year before. I regard certain constitutions specially susceptible to this severe form. One family, within my knowledge, has suffered in every epidemic for many years, and always very severely—but I am unable to say just what peculiarity of constitution makes them so disposed to the severer forms of the disease. The same family has suffered very much from croup, but not from diphtheria. Many members are martyrs to rheumatism and neuralgia. In the cases of scarlet fever where the pulse is very high, with intense fever, I have used a warm bath and cold to the head—ice bag, cold douche, etc., without any relief. I like much better the mode of treatment advocated by Dr. Bedford and others, in which cold water or a cold sheet is applied to the whole body for a period varying from a few seconds to several minutes. I think the only mode of reducing the intense fever of scarlet fever is in the use of cold water, not simply to the head, but to the whole surface of the body, and at an early stage of the disease.

Cholera infantum and diarrhea of infants are always more or less prevalent among us. I enter upon the treatment of these cases with infinitely greater confidence and hope of relief than formerly. The vomiting as well as the diarrhea can usually be checked by a spice-plaster. Lime-water is also very useful. It is not sufficient to *order* a spice-plaster to be applied; it should be seen to redden the skin and produce the desired effect, by careful examination. If cloves and cinnamon are not sufficient, ginger, Cayenne pepper, or mustard should be added, and, when the redness passes off, reapply the plaster. Place it over the stomach to check vomiting, over the bowels to check diarrhea. It will do much for the relief of the little sufferer if moved and reapplied from time to time for two or three days or more. Of course, pure air and cleanliness are of the first importance. A grain or two of hydrarg. cum creta, with as much Dover's powder, may be necessary to change the character of the evacuation and soothe the patient, but there is vast efficacy in the spice-plaster when judiciously employed. A mixture of the elixir of hops and valerianate of ammonia and syrup of lactucarium, is also a very soothing agent in the disturbance of teething.

In this valuable paper by DR. SARGENT, he says:—

In scarlet fever where the pulse is high with intense fever, I have used a warm bath, cold to the head—ice-bag, cold douche, etc., without any relief. Relief from what? and after referring to the cold water or cold sheet application by Dr. Bedford, adds: "I think the only mode of reducing the intense fever of scarlet fever is in the use of cold water, not simply to the head, but to the whole surface of the body, and at an early stage." I call attention to the above in order to correct a misapprehension on the part of Dr. S. Several of our members have, in their reports, stated that they use ice to the throat and head in scarlet fever and diphtheria, but without referring to the use of cold water to the surface of the body to reduce excessive heat of the system—but all of them do it when necessary. It has been in use in this country by several physicians for many years, and by myself for more than thirty, and that, too, in what may well be regarded as a most daring manner, for then we had no clinical thermometer to guide us. When, therefore, we wish to reduce the general temperature of the body, we sponge it all over again and again with cold water, or apply the wet sheet, as best may suit; but while doing this, danger to the throat or brain, the avenues through which death comes, may call for the ice-bag and cold douche, which, though inefficient in the hands of Dr. S., have never disappointed us.

I have thus presented the essays sent to me by members, in the order in which they were received, and have made such reference as I deemed of service, to call attention to such special facts, and points in treatment as seemed to demand notice. It only remains for me to make my own report of one year's doings. With the seasons came their varied diseases, but the year was a healthy one—scarlet fever, diphtheria, and pneumonia are the three most generally dreaded—and perhaps most worthy of notice here. I had fifteen cases of scarlet fever and seven of diphtheria—of the former, all recovered under the use of ice externally to the neck, and internally to the throat in the form of ice-water or ice-cream, aided by tepid or cold ablutions in cases of high temperature. Of the diphtheria cases, I lost one. In the early part of August, 1875, a young lady of 15 years, temporarily staying with a family a few miles below Camden, New Jersey,

was taken with the disease, at the same time that two younger children were attacked. The two died in a few days; the physician not allowing them even cold water as drink, but putting them through the old process of fat meat, caustic, etc. The young lady, on the contrary, used cold water freely, inside and outside, and recovered. She came home on the 24th of August, and on the 30th I was called to see her sister, six years old. She had been croupy for two days, but as she was very liable to croup, her mother did not regard it as anything else, and had given her freely of emetics. I found her throat in a fearful condition. She was very croupy, wholly unable to articulate, and, despite my efforts, she died under great suffering, exactly as I have seen children strangle to death in cases of croup. The next daughter, four years old, was not affected till 24th November. From the very start there was a croupy sound attending the cough, but, as I saw her early and applied the ice and its adjuncts vigorously, she was saved, though her case was a trying one, from the affection of the wind-pipe. On the 3d of December, the only other child of the family, a son nine years old, was affected, but by prompt and early attention he got along without becoming seriously ill.

It is impossible for anything to increase my confidence in the cooling treatment of scarlet fever, diphtheria, measles, and small-pox, but every succeeding year adds confirmation to the value of the procedure, and impels me to apply the same efficient and pleasant means of cure to numerous other maladies of which I may soon write. I hope the readers of the *Transactions* will not weary of our annual presentation of this subject, and of our laudation of the cold treatment, until they shall discover and practice some better mode of cure than the old one to which they cling, and which has slain its thousands.

Pneumonia prevailed to a moderate extent this spring, and was occasionally fatal from delay in attending to the cure, or from improper treatment. It is very sad to see healthy, strong people struck down, in a few days, by a disease so curable as inflammation of the lungs—a disease which, many years ago, was not fatal so frequently as to produce alarm. Now, it is more dreaded than any other disease which occurs in winter time. It is even considered to prevail and "spread" like epidemics. People appear to believe that the germs of it are in the atmosphere,

that they may be attacked at any time without regard to the care they may exercise. As a child exposed to the measles will be likely to take the disease however you may shut it up in the house, diet and otherwise care for it, so they feel in regard to pneumonia. The cause of it is, they think, about in the neighborhood. It is floating in the air they breathe, and they will be likely to get it. This is most unfortunate, and arises from two causes. First, from its frequent fatality, and second, from the teaching that it is not, as it used to be many years ago, a mere inflammation of the lung tissue, and under the control of measures which generally subdue local inflammations, but is attended by a fever of a low type, a "kind of typhoid condition," which calls for stimulants in the treatment, from the beginning of the disease to the end of it. So great is the fear of this affection, that there is a panic in the neighborhood where a case occurs. The cholera does not now produce so much fear.

In the city of Philadelphia and the surrounding counties, there was great alarm last spring, when "colds and coughs" and pneumonia prevailed so extensively. There were many persons died of pneumonia in the early months of last year. Several prominent men died in the city; indeed, the death of almost every prominent citizen who died was announced as having been caused by pneumonia, and it was frequently added, "after a very few day's illness," or "suddenly of pneumonia." Now, what is the treatment of this affection, and how does it differ from the treatment which was practised by Cullen, Gregory, Watson, Wood, and Eberle, and by them advocated in their writings in the strongest language, and to the great value of which, in nearly always arresting the disease, they testified? It is worth while to make this inquiry. We ought not to be content to say pneumonia was very prevalent and quite fatal—we ought not to give a particle of credence to any one who reports, "I had a great many cases of pneumonia, but they all yielded readily to verat. viride, borax, and carb. ammonia." No one physician in a small town has "dozens of cases," while it is very rare in the hands of his fellows. It is not every cough that heralds a pneumonia.

In what does this disease consist? Professor Geo. B. Wood, speaking not only of himself, but for all the practitioners and writers of the past century, says: "Pneu-

monia is now universally applied to inflammation of the spongy tissue or parenchyma of the lungs." And what does he say of its fatality? "In primary pneumonia of the common or lobar kind, in good constitutions, there is every reason to hope for a favorable issue. Cases of this kind almost always end in recovery under proper treatment." And what was that proper treatment? Bleeding, cupping, cooling diaphoretics, blisters, etc. Of forty cases observed by Dr. Wm. Gerhard in the Children's Hospital at Paris, in children from six years old to the age of puberty, only one terminated in death. And yet the treatment practised by Drs. Gerhard, Wood, and others so successful in their day is now repudiated, not alone by young physicians, but by eminent teachers. They turn with triumphant air to the opinions of Grisoile, Rindfleisch, Ziemssen, Juergensen, and others; solid men all of them, all advocating one theory, while they differ about facts. I have gone with much care over Juergensen's 235 pages on Croupous and Catarrhal Pneumonia, a work of which any man might be proud, for it is an exhaustive history of those subjects, and what have I found? That his croupous pneumonia is the same disease as that which by Professor Wood and other authors is called pneumonia, viz, an inflammation of the lung-tissue. The names differ, but the disease it the same. Hear Juergensen! "*Croupous pneumonia is, anatomically considered, an acute inflammation of the alveoli and bronchioles, in which a fibrinous exudation is poured out upon the free surface of the mucous membrane and there coagulates.*" The histological examination gives as results, he says, "*Inflammatory engorgement.*" "All the blood-vessels of a large part of the lung are distended with blood. The capillaries project far into the cavity of the alveoli and evidently narrow it. The effusion, which first appears, consists of an albuminous viscid fluid, and this is succeeded by exudation and extravasation. Here and there, especially in the connective-tissue septa and under the pleura, there are found small punctiform extravasations of blood." (*Cyclopædia of Practical Medicine* by Ziemssen, vol. v. p. 43.) Is there anything new in this? Does it differ in any particular from what was taught to all of us long ago? Inflammatory engorgement, followed by acute inflammation and exudation. But bear in mind, now, that though this is the disease generally termed pneumonia, and by Juer-

gensen croupous pneumonia, yet he has also what he calls "catarrhal pneumonia." He says: "Acute catarrhal pneumonia originates in a very intense and widely diffused catarrh of the smaller bronchi." And again: "Catarrhal pneumonia is always a secondary morbid process. It never originates primarily in the alveoli, being usually preceded by an inflammation of the bronchial mucous membrane." In other words, there is first bronchitis, and then the lung-tissue becomes involved, and we have *his* catarrhal pneumonia.

Is this a new idea or discovery? No; you will find in the oldest works on pneumonia that bronchitis is given as one of its causes or antecedents. Is there then, you ask, any difference between Profs. Wood and Juergensen and his followers? Yes; there is a wide difference, and the pith and point of it is right here. We—surviving members of the old *regime*—have always regarded pneumonia as a local inflammatory disease, the fever, cough, etc., resulting from *that*. We have based our measures of cure on this view. So also we regarded bronchitis and pleurisy. We felt that, if we could by any measures arrest the spread of those inflammations, our patients would soon convalesce. Juergensen agrees with us that pleurisy and bronchitis, and even his catarrhal pneumonia, are local inflammations, and produce the symptoms and pathological changes; but he does not so regard his croupous pneumonia. He says: "*Croupous pneumonia*" (our primary pneumonia) "*is a constitutional disease, and is not dependent on a local cause. The pulmonary inflammation is merely the chief symptom, and the morbid phenomena are not due to the local affection. The hypothesis of a morbific cause is indispensable. Croupous pneumonia belongs to the group of infectious diseases.*"

And now we can see how this opinion of his turns him away from our mode or principle of treatment. For he regards pneumonia, like whooping-cough, measles, etc., as an acute infectious disease, and says: "In acute infectious diseases Nature cures, and *the only duty of the physician is to maintain life until this cure is effected*" (page 150). If it were only a local inflammation, as we have regarded it, and as he regards pleurisy, bronchitis, peritonitis, and his catarrhal pneumonia, he would regard our efforts to abort it, to allay the inflammation by bleeding, as admissible. Hear him! "If we suppose that we are deal-

ing with a local inflammation, we are justified in again and again searching for means by which to subdue the inflammation and abort the disease. For in other forms of inflammation—as, for instance, peritonitis—this may be actually accomplished. Hence the attempt to diminish the severity of the inflammation by early bleeding, a mode of treatment which has always in the past been regarded as indispensable. It was supposed that there was a local inflammation to be combated, and that for this purpose the abstraction of blood was the appropiate, nay, the sovereign remedy. *Taking this view of the case, there certainly was a demand for energetic bleeding.*" (Italics mine.) I am fain to believe here that our author has made a distinction between things which do not differ. He would like us, when called to a case of pneumonia, to do nothing until we have duly determined which form of pneumonia afflicts our patient—whether it be a local inflammation of the lung, producing pain, cough, fever, etc., or whether it be "a constitutional affection, in which the inflammation of the lung is only one of the symptoms." If this be necessary we should have some ready means of determining it. Has he pointed out any such means? What does he say about it? "It may be laid down as an incontrovertible proposition that there is no sign pathognomic of croupous pneumonia," page 135. And again, "neither the rusty-brown expectoration, even when fibrinous casts are found in it, nor the inspiratory crepitant rales, are signs of such a character."

And again, at page 218, he says: "It will be found very difficult, and perhaps for a time impossible, to draw the *distinction between a case of catarrhal and one of croupous pneumonia*, if one does not see the case until consolidation is complete." And yet in this uncertainty, and when the inflammation is making rapid headway, he wants us not to attempt to arrest the disease which is spreading through the lung, for, although "bleeding is a sovereign remedy" for one form of the affection, yet it might chance to be that other form which "Nature cures," and yet he cannot teach us to distinguish one from the other. Verily, this is the quintessence of German philosophy. I have taken much pains to learn from physicians who are content to treat this disease by the use of a few drops of tinct. of aconite or veratria or digitalis every two hours, what object they had in view and to be attained by the

action of the medicine. I found of my neighboring physicians three, residing near to each other—one using aconite, another veratria, a third digitalis, and all aiming at the same object, "to bring down the pulse;" as if to bring down the pulse would arrest the extension of inflammation in the lung. In some of the most dangerous cases, the pulse has been but slightly affected, until the lung had been seriously invaded; often has not reached more than 85 or 90 per minute. Suppose we could slow the action ten or fifteen beats per minute, would that check the spread of the disease through the lung? I think not. But if it would, why not give a full dose at once? Why potter along with a few drops every two or three hours for two, three, or four days, watching for effect on the pulse? The history of this treatment, in our State, is a sad one. A history of physicians coming to the bedside of their patients, day after day, relying on a few drops of one of those medicines, while the air-cells of the lungs are being blocked up, the patient becoming more and more oppressed, eventually to strangle for want of air. Even if they could by a single dose reduce in number and weaken in force the heart beats to the desired point, would the inflammatory engorgement, the distension of blood-vessels, of which our author speaks, be removed, or even relieved? The disease regarded in all its aspects under the eye and scalpel and microscope of Rindfleisch, is exactly what it always has been proved to be by the authors who have preceded him. It remains for me now only to speak of the effects of blood-letting in this disease. And here I am reminded of an illustration, thrown out by Professor Gross, of Philadelphia, in a discussion on the utility of venesection, at Easton, before the State Society, in 1874.

Dr. Gross said: "Were a patient to come to me with acute conjunctivitis, the vessels filled with blood and the eye red as scarlet, and were I to open a vein in the arm and draw blood rapidly until the force of the pulse were weakened and syncope threatened, the blood would disappear from the vessels of the eye, the capillaries would be unloaded, the redness of the eye would be gone, the congestion relieved. But were I, instead of this, to sicken my patient by any one of those heart-slowing remedies, no such results would occur."

This is a beautiful illustration, and as true as it is

beautiful. From the capillaries of the lungs or pleura, the blood is as certainly drawn by venesection, as from those of the eye. Hence, the great success of the measure. The test of a remedy is success. If it be not powerful in controlling disease, away with it; but if it be greatly efficient, let no theories of learned Germans cause us to turn our backs upon it. Let us now look at the merits of the two plans of treatment in vogue here (not in Germany and France, where their cool baths, cold effusions, and varied means of reducing, not the pulse, but the *heat*, may be greatly efficient). This spring, I have been called to consult with three physicians in cases of pneumonia in persons of thirty, fifty, and sixty-four years of age, all robust and healthy, but all in the advanced stage of the disease, and who died in a few days, two of them suffering terribly with difficult breathing. Not one of them was bled, or cupped, or leeched. Aconite, veratria, digitalis, and quinine and whisky, were all brought to bear upon them, in the doses and under the conditions prescribed by their different physicians.

In addition to these cases, I made inquiry in relation to fifteen others. Several were prominent persons in Philadelphia, of whom I had knowledge, and whose sudden, or rather unexpected, deaths were announced as having been caused by pneumonia, and three were reported by a newspaper correspondent in a prominent town in Chester Co., as having been suddenly cut off by pneumonia in a single week; all neighbors, living close to each other. The impression was given by the article, that this fatal and dreaded disease was then quite rife in that section of country. Four others were persons in our county, of whom I had knowledge. My inquires were merely to ascertain whether in any of these cases the patient had been bled, or cupped, or leeched. *In not a single case had they been thus treated.* In mentioning these facts to my friends—physicians—they reported other cases to me of deaths in their regions, and could only say in reply to my inquiry, that, "it was not likely that bleeding was practised, for they knew that the physician did not practice it at all." There were also other deaths in the practice of some of the physicians near to me, who were not bled. Let us now look at the other side of the picture. I will mention my first case somewhat in detail:—

C. S., aged 45, a temperate healthy man, was out in a

fearful rain and snow storm during the whole day in a long, slow ride in a funeral procession; returned at night wet and weary; had a chill at bedtime; some pain on the side followed; slept none; felt very wretched in the morning, and I was sent for. It was 3 P. M. when I saw him; he complained of no pain, but the bed clothes seemed oppressive, he preferred to have his arms on the outside of them, though his habit had been to tuck them at night closely around his neck. His pulse was only 88, but was weak, though full and easily compressed: he had but slight cough; but a basin alongside of the bed contained considerable bloody sputa. Auscultation and percussion revealed but little change from health. A very striking feature in his case was his sense of great weakness. When I proposed to bleed him, he said: "I never was bled, and I am somewhat afraid of it now, for I am so very weak. I do not feel as though I could raise my arms. I don't think I can sit up to be bled." I must own that his soft pulse and great apparent weakness would have well justified the young practitioner, imbued with the present teaching and practice, to have passed by venesection, and to have put the whisky and quinine to work at once. But when I reflected that yesterday my patient was a strong, well man, and then inquired, what has brought him to this condition? what is the cause of the bloody sputa, the quickened pulse and respiration, and the inability to rise and go to work? I could refer them only to an inflammation of the lung; the croupous inflammation of Rindfleich and Juergensen; their acute inflammation of the alveoli and bronchioles of the lung. That. in this early stage, I could not hear a crepitus; that percussion and auscultation did not give abnormal sounds distinguishable by my dull ears, were not proofs that there was not a fast-spreading inflammation, and that the minute blood vessels of the lungs were not being over-filled with blood, some of which was oozing from their distended coats, as evidenced by the bloody sputa. Thus regarding his condition, and having a firm faith that I could relieve the fullness of the blood-vessels of the lung, and thus arrest the inflammation, better by bleeding or cupping than by any other means, I bled him 17 ounces by measure, and had the satisfaction to hear him say a few minutes afterwards, that he "was greatly relieved of the fullness in his breast; that, though there was no pain to be relieved, yet

that there had been a sense of fullness and oppression which had been quite distressing, and which the loss of blood had greatly relieved." Five grains of calomel were then given, to be aided by magnesia, and after the bowels should be moved, ten grains Dover's powder were to be taken, to procure rest and allay the cough.

Next day, pulse was 76; took five ounces of blood by cups from the back, between the right shoulder-blade and the spine, on account of a complaint of pain in that region; ordered eight grains of nitrate of potassa and one-twelfth of a grain of tartar emetic, to be taken every two hours. I need not go further in describing the treatment; the *force* of the disease was broken by the loss of the seventeen ounces of blood in this early stage of the affection; and cool drinks, ice-cream, and a diet of soft toast and plenty of milk restored him to health in less than a week. It would have surprised some of our knowing young men, who see pneumonia in every slight catarrh, and give quinine and whisky to reduce the temperature of the body at the same time that they give it strength, to have seen how marked was the *apparent* increase of strength, or removal of his sense of weakness, produced by the bleeding, and it would have been interesting to them to have seen the "cupped blood" as exhibited in the bowl in which it had remained for a few hours. I have met with many, very many of our recent graduates who have never seen cupped blood, and who know not its significance.

My second case was a married lady of fifty years, very delicate, a thin weak body. She had labored under the prevailing cough for nearly a month, but was still going out; an unusual exposure resulted in chills, with sharp pain low down in the right thorax. I was sent for March 26th; found her with a pulse of 100, and not strong; cough hard and frequent; sputa bloody but not copious; bled her twelve ounces; applied cloths wrung out of cold water to her affected side every fifteen minutes; gave her nitrate of potassa and tartar emetic, one-quarter of a grain of morphia at bedtime, and she was as well as usual for her to be in a week by a mild treatment as in the former case.

My third case was in a man 62 years of age, who had been nursing himself for a couple of weeks in the house, on account of the prevailing bronchitis; but feeling

better one day, he went into the garden and stood on the freshly-dug ground for some time, when he was taken with a chill. In twenty hours after this I saw him; he had pain, cough, bloody sputa, etc. He was a thin but strong man. I bled him freely, and repeated it next day; kept him on milk; gave morphia to obtain rest, etc., and he soon recovered.

Fourth case.—Sophia, a Bohemian girl, very healthy, aged 22; had a hard chill May 7th, just before going to bed. Saw her on 8th at 3 P. M. Her face was very red; pulse 112, hard and strong; pain in right side and shoulder and front of chest; bled her thirteen ounces (while sitting up in bed), when she became slightly sick; after lying a quarter of an hour I found but little impression had been made on her pulse, but I ordered her a dose of cathartic medicine, to be followed by an anodyne, and left her; found her, next morning, not relieved; pulse 125; skin very hot; face very red; great thirst, cough, and bloody sputa; bled her sixteen ounces, and cupped her four ounces, by measure; ordered nitrate of of potassa and tartar emetic, dose at bedtime. Found her that evening with the force of the disease subdued; light diet—which means milk as much as she may crave—cool drinks, and the medicine moderately given soon restored her.

I had also two cases of acute bronchitis, in girls of twelve years, of a threatening kind, which greatly simulated pneumonia, but which failed to show the bloody sputa and the great depression so characteristic of real pneumonia, and I did not bleed them; and though they got well, it was only after weeks of suffering and danger. I believe an early venesection would have greatly expedited the cure.

My brother, Dr. Wm. Corson, and my neighbor, Dr. Edwin C. Leedom, also bled their cases of pneumonia and pleurisy, and in every instance with success. Let me sum up. Of the eighteen deaths of which I have spoken, all were treated by those who reject bleeding. No case can be pointed out, in a range of many miles around this place, that proved fatal after a free and early bleeding. What we need in the treatment of pneumania is to see the patient early, while there is yet only distension of the bloodvessels, and commencing "inflammation of the alveoli and bronchioles," and then to bleed promptly—

copiously—so that we shall drain the blood, so to speak, from the capilliaries of the lungs, as Professor Gross drains it from the minute vessels of the eye. This done, and the stomach not poisoned and sickened by veratria, the brain not made to reel and hum with quinine, or be stupefied with whisky, and the case will, in the hands of even a skilled nurse, rarely prove fatal.

I may mention another incident. At the discussion in Easton already referred to, after Professor Gross, the two Atlees, and other eminent practitioners who had hundreds of times tested the value of blood-letting in inflammatory diseases, had spoken of their great confidence in it, a physician of Perry County rose under much emotion, and said that he was very glad that he was present to hear such testimony; that years ago he used to bleed his patients who had pneumonia, and nearly always with success; but that for the last eight years he had been afraid to use it. Several young doctors, and some homeopathists had settled in the country, and all denounced bleeding as being no better than murder. They talked about a change in the type of disease which had taken place within a few years, and which rendered bleeding inadmissible, even dangerous, and had therefore yielded to the prevalent sentiment and had given up the lancet, "and now," said he, "within a few weeks I have lost five healthy, strong persons, with pneumonia. But I will never treat another case of it without bleeding, if I should be driven out the country for it."

As every thing which can throw light on this subject is of importance, I am impelled to relate an incident which may add strength to what has been written. At a recent meeting of the Montgomery County Medical Society, a young man, who has a very large practice, and who has been strongly impressed with the value of aconite as a substitute for venesection in inflammatory affections, reported that he had been sent for to-see a woman who had then been confined two days, had had no physician, and he had been sent for because she seemed to have contracted a pneumonia. He found her quite ill, but by the use of aconite he had reduced her pulse from 160 to 80 per minute, and she was convalescing rapidly. I could not forbear to speak on the subject, and to urge on the society, to look at what was going on around us, in our region—persons dying one after another of pneumonia, in

the hands of those who use veratria, or aconite, or digitalis to the exclusion of general and local bleeding, while those who bleed freely save their patients. After my young and able friend got home that night he was sent for to see his patient, and found all her symptom aggravated, and the pulse again at 160. The next day but one he called to ask me to see her with him, though he confidently believed she would die. It did not suit me to go then; he went back, bled her nearly or quite a quart, and when I saw him two days afterward, he said she was, he thought, out of danger. She was soon well. Let us think a moment longer of this case: a woman who had lost the usual amount of blood after a labor, bled a quart by the doctor, and without "supporting treatment," strengthened, and saved from impending death. I am greatly humiliated to feel that it has become necessary to thus present testimony to prove, to our young physicians, the utility of a measure which until within a few years had no superior in the best of our best practitioners, but which now finds no place in the confidence of some of our present teachers.

If any reader of the *Transactions* should think we have occupied too much space on these few diseases, I can only say in our defense that country doctors do not expect to occupy space with physiology, minute anatomy, or the discoveries in chemistry, or the revelations of the microscope, or on specialties so-called. Our work is in practical medicine, and surgery, and obstetrics. Here, never losing a single day, we labor on; and if the aurist, or oculist, the orthopædist, or the chemist be authority in his specialty, we should be so too in our wider field of labor, our greater specialty. They deal with the dull ear, the dim eye, the deformed or anchylosed joint; we confront Death himself, and if any of us have discovered a new or better mode of arresting his advances, or parrying his blows, or antidoting his poisons, it is our duty to make prompt and full report to our fellows.

The gathering of the profession at Euston Station, London, to do honor to the remains of Sir William Ferguson on their transmission for entombment in Scotland, was very large—estimated from 1,500 to 2,00. There was also a strong contingent of students, chiefly King's men.

Selections.

On the Immovable or Plastic Dressing in Fractures of the Lower Extremity.

An Extract from a Clinical Lecture, by DAVID W. YANDELL, M. D., Professor of Surgery, etc., in the University of Louisville.

Gentlemen: —To recapitulate—You must have the whitest, finest, cleanest cotton batting, the smoothest and freshest plaster-of-paris, and a lot of roller bandages made of the cheapest and flimsiest cotton cloth, such as is used for lining comforts or covering cheese. After getting the cloth have it well washed and dried. Tear it then into strips of two and a half or three inches in width, and into two different lengths. One should be nine or twelve yards long, the remainder should be but three yards long. Lay these latter on a kitchen-table or board, and have the dry plaster well rubbed into the cloth. Roll them now as evenly as you can. Have an ordinary wash-basin one-third full of water a little warm. Put into this two heaping tablespoonfuls of powdered alum. Have the whites of a half a dozen fresh eggs beaten into a froth. Open out the batting carefully, that it may be in a sheet rather than a roll. Envelope the broken limb in this. Be particular that the bony prominences are well covered. Secure the cotton with your long roller, into which, you will remark, you have rubbed no plaster. Put your plaster rollers into the basin of water. Squeeze and press them with your hand, that they may be well wetted. Apply these to the limb, one after another, until you think you have made the dressing sufficiently firm. I think you will find three layers usually sufficient. You may apply the fourth immediately over the seat of the fracture. As you proceed you may put the rollers on longitudinally instead of circularly. You observe we make no "reverse" turns of the bandage. They are unnecessary; indeed they give the dressing a clumsier appearance than it otherwise would have, and are in that at least objectionable. As you apply each layer of bandage, smooth it nicely with your hand. It will add to the firmness of the dressing and make it dry more quickly. Having put on as many rollers as you care to, and smoothed them well, wait a few moments for the plaster to dry. The alum you have

added to the water will greatly facilitate this. When comparatively dry apply the whites of the the eggs over the plaster. Now apply a roller without plaster over this; or, if you prefer, cut the roller into strips and lay them along the length of the limb. The purpose of the eggs is to prevent the plaster from chipping. The purpose of the additional roller is to assist in this, and to give to the dressing a finish which it does not otherwise have. Beside this the whites of the eggs will be a great convenience to you in enabling you to cleanse your hands of the plaster. They are better than any soap or any amount of water. Indeed they are the only substance I know which, if you work much in plaster, will prevent your hands from chapping and becoming harsh and rough.—*Louisville Med. News.*

Alitura Wine.

By A. Delevan, M. D.

This is a nutritive sparkling wine, containing *food for the brain and nervous system.*

It is made from soluble phosphates and the richest grapes produced in America.

In addition to water and alcohol, which all wines contain, the composition is as follows:

Gum.
Malic Acid.
Grape Sugar.
Volatile Oil.
Œnantic Ether.
Coloring matter.
Bitartrate of Potassa.
Tartrate of Lime, and other salts.
Phosphate of Lime.
" Magnesia.
" Iron.
Lactic Acid, and
Carbonic Acid Gas,

Which render it a delicious sparkling wine, containing less alcohol than that of wines generally, but a little more than good ale, so that in this regard it occupies a position intermediate with wines on the one hand and ales and strong beer on the other.

From the composition it is evident that for studious, intellectually active persons, this wine will be found a valuable support to the brain and nervous system, while it cannot fail to supply tone and power to the muscle.

Physiologists have established the fact that the vital activity of animal life is proportionate to the quantity of lime phosphates which animals assimilate; and when there is a deficiency of the phosphate of lime in the system of the young, not only rickets and mollitis ossum (flexible bone) occur, but the muscular and fibrous tissues rapidly diminish, consequently physicians have been led to prescribe the phosphate of lime which the system so much requires in these cases, but in most instances the remedy has failed in benefiting the patient—not that the right remedy was not used, but because the system could not appropriate the pulverulent phosphates of lime.

Lactic acid is the natural solvent of recently calcined bones, which furnishes in the perfectly soluble form the tribasic phosphate of calcium.

In this form it is easily assimilated, and is the only remedy in connection with other proper food capable of affording the system the elements of nutrition essential to its support in the cases referred to, and in children whose development has become suddenly arrested.

Every practising physician is familiar with cases of children who, during the process of dentition, or the various critical stages of development, and especially about the time of puberty, feel a disgust for all kinds of food, and take but little nourishment; under such circumstances atony of all the tissues and derangements of the bowels are apt to occur.

Towards the other extremity of life, we meet with conditions which in many respects are similar to those in children; and from the morning time of life to old age we not unfrequently meet with persons in whom almost all the organic functions are to a greater or less degree suspended in consequence of a deficiency in the tissues of phosphate of lime.

It is also true that phosphate of lime is essential to digestion. It is found in the gastric juice, and its action on the digestion of food is such that Blondlot considers the phosphate of lime to be the truly active element of the gastric secretion; however this may be, we do know that the lacto-phosphate of lime not only excites the appetite, but quickly facilitates the digestion of food.

Drs. Dusart and Blacke, of Paris, who have had great experience with the lacto-phosphate of lime, say, "the wine of lacto-phosphate of lime, administered at the end of meals, excites digestion, increases the assimilation of alimentary substances, and awakens muscular energy, which is so often wanting in advanced life."

In the Alitura Wine the phosphate of lime and all the other salts exist in solution, and hence are easily absorbed; and when this wine is taken in conjunction with food, it aids digestion, nourishes the system, and is an agreeable cordial.

In grave fevers where nutrition is arrested, and in acute affections of an adynamic form, by the judicious use of this wine the functions of nutrition are restored and the system sustained. Both in acute and chronic diseases digestion is rendered easy and the assimilation of food is secured.

In severe cases of dyspepsia the addition of pepsin and diastase to this wine, and taken with meals, will cure every curable case. Both of these articles are soluble in the wine, and only small quantities are required; a grain of each is quite sufficient for adults, and less for children.

A Method of Measuring the Lower Extremities.

Dr. R. O. Cowling, of Louisville, writes to the *New York Medical Record:*

"By the ordinary method of obtaining the comparative length of the lower extremities it is difficult to get exact results. Even when every precaution is taken to guard against the obliquity of the pelvis (which is the chief source of error), an eighth or even a quarter of an inch difference may escape detection. Such at least is the case when measurement is made between the spinous process of the illium and the malleolus on each side. Neither of these presents a point, but a surface which in persons well-clothed in flesh occupies considerable area. When measurement is made from the umbilicus or episternal notch to the middle of the sole of each foot (Sayre's method, I believe), this difficulty is, perhaps, done away with. I have, however, for several years past, adopted another plan, which is, I think, more convenient, and by which the liabilities to error (when a tape-line is used) are re-

duced to a minimum. The plan is this: The patient, lying on the floor or a table (a soft mattress will confuse any measurement), the parallelism of the iliac spines and the proper extension of the limbs being looked to, a point is taken on the umbilicus, and marked with ink, if necessary. Commencing at this point, the tape is carried in turn *around the sole of each foot, and back again to the point of departure.* The difference between the two measurements thus obtained represents *twice* the amount of difference which exists in the length of the limbs. For instance, if the measurement thus obtained when the tape is carried around the right foot is fifty-four inches, and when carried around the left foot is fifty-five inches, the difference in the length of the limbs is *half an inch.*

"Of course care must be taken to carry the tape around corresponding portions of each foot, and in the same direction—from within, outward, or *vice versa*—on both sides. A great amount of swelling in the foot may also occasion error, but not to the extent it might be imagined. I think the method described will be found convenient and useful, either when employed alone or to verify results obtained by other plans. It has the advantage of indicating small differences, as these are multiplied."

Milk in the Treatment of Typhoid Fever.

Professor W. H. Thompson, of the Medical Department of the University of New York, in a lecture on the treatment of typhoid, after referring to the use of beef tea, which he thinks is "more often the plague of a sick-room than any other benevolent mischief that can be named," and to that of gruels, which, though better than beef tea, are still a sort of "starvation" diet, proceeds to state what he would substitute for them as follows:

"Far superior to either of these in its nutritive value and in its digestibility is that liquid prepared originally for the alimentary canal before it is old enough to dissolve any solid food, namely, milk. First, as to nutritive value, there is nothing absent from milk which the system needs, while in all our sick-room preparations there are invariably some deficiences, and, generally, lacking of what is essential to continued life. The bones waste away remarkably in typhoid fever; what is there in beef tea or

gruel for them? The nervous tissue rapidly loses bulk also; where in these articles is there the fat which this more than any other tissue needs, except the utterly indigestible boiled fat of beef tea, which turns into caustic butyric acid in the bowels? But milk has been aptly defined as fluid flesh and bones together; still better may we add, soluble nervous matter, for it is the nervous tissue which grows fastest and most at the age when milk alone is the diet. Now we are met by the objection that milk is a very indigestible article in fever, and among the laity we often find a positive dread of it, as if it were poison to the sick. I could never understand how physicians will aim by various measures to make milk digestible to infants who have to live on it; while in fever, if it seems to disagree, from a more than infantile weakness of the stomach, they are ready to abandon the only thing in the world that can be relied upon exclusively. If we dilute cow's milk, then add sugar and a little salt, and lastly, cream, so as to make a child, starving because it cannot digest cow's milk pure, digest it when it is thus rendered more like human milk, why should we not try the same with a starving fever patient, rather than exchange this complete food for our confessedly incomplete and clumsy preparations? I can only say, in answer, that I have never yet met with a typhoid-fever patient who could not take milk, and not only live upon it alone, but also, in a marked and impressive contrast with those cases which are fed on slops, be found at the termination of the disease with muscles and tissues still nourished enough to cause surprise even to the patient's friends. In order to make milk digestible you should remember that the chief difficulty in the way is its casein, and therefore you should aim to reduce its proportion by dilution with one-half or one-third of lime-water. The alkali in lime-water is a great assistant to the digestion of casein, for reasons too long for us here to explain, but, in addition, like salt, lime is both an antiseptic and an excellent agent for allaying irritability of the stomach and bowels. I have had patients take as much as six quarts in the twenty-four hours of milk and lime-water for days together, nor do I object to the mere bulk or amount of liquid which this implies, because I do not think that water is other than a need and a benefit to a fever patient, for it is the safest of all diuretics, and in this form I have never found it increase diarrhea, but rather the opposite.

But you have still remaining a means for completing digestion, which experience leads me to rate as one of our best adjuvants in the task before us. The introduction of artificial solvents, such as pepsin and pancreatin, marks undoubtedly a real advance in therapeutics, but in no conditions does the employment of pepsin seem so much indicated as in the indigestion of fever. In fact, I have been surprised with some results from its use which I was not looking for, namely, that it controls the typhoid diarrhea better than any agent with which I am acquainted.—*Boston Jour. of Chemistry.*

Bromide of Ethyl as an Anæsthetic.

By M. Rabuteau.

At a recent meeting of the Academy of Sciences M. Rabuteau gave some details of an investigation of the physiological properties and mode of elimination of bromide of ethyl.

Bromide of ethyl (C_2H_5Br), or "hydrobromic ether," is a colorless liquid, with an agreeable odor; it boils at about 40° C., has a density of 1.43, and burns with difficulty. The boiling point and density are therefore intermediate between those of chloroform and sulphuric ether.

Bromide of ethyl absorbed by the respiratory passages produces absolute anæsthesia as rapidly, or even more rapidly, than chloroform. This result has been established with frogs, rabbits, dogs, etc. After five minutes', sometimes after two minutes', inhalation, by means of a sponge saturated in bromide of ethyl, dogs are completely anæsthetized. The animals recover more rapidly than when chloroform is used.

When a solution of hydrochlorate of narceia, or hydrochlorate of morphia, was injected under the skin of dogs, before inducing anæsthesia, an action was observed analogous but perhaps inferior to the simultaneous action of narceia, or morphia, and chloroform.

Bromide of ethyl is not caustic, nor even irritant, compared with chloroform. It can be ingested without difficulty, and applied without danger, not only subcutaneously, but to the external auditory meatus and to the mucous membrane. In this respect it is preferable to chloroform, which is very caustic, and to sulphuric ether,

of which the ingestion is nearly impossible. Introduced into the human stomach in doses of 1 to 2 grammes, bromide of ethyl does not produce anæsthesia as when absorbed in sufficient quantity by the respiratory passages. It soothes pain and does not disturb the appetite.

This anæsthetic is nearly insoluble in water. Nevertheless water shaken with it acquires a pleasant taste and odor. Frogs placed in water so saturated undergo anæsthesia in ten or fifteen minutes.

Bromide of ethyl is eliminated nearly entirely, if not completely, by the respiratory passages, whatever may have been the mode of absorption. At most only traces of it are found in the urine when it has been introduced into the stomach, and an extremely small quantity can be detected in that liquid when it has been inhaled. The author finds that bromide of ethyl does not decompose in the organism to form an alkaline bromide, such as bromide of sodium, a salt that is easily eliminated by the renal passages.

From his experiment the author concludes that bromide of ethyl is an anæsthetic agent possessing properties intermediate between those of chloroform, bromoform, and ether.—*The druggists Circular and Chemical Gazette.*

Hot Springs of Arkansas.

As for the Hot Springs themselves, we believe them greatly over-rated. That the treatment of syphilis, gout and rheumatism, in their chronic forms, is remarkably successful at these springs is a fact too well attested to admit of dispute. But that the waters in themselves possess any remarkable virtues seems to us altogether another matter. Enormous doses of mercury and iodide of potassium are given with a fearlessness—we might say recklessness—that is somewhat astonishing to one who has given no attention to the other treatment enjoined. Immense quantities of water at a high temperature are drunk, and with this frequent hot baths are given. These powerful alteratives are thus hurried through the system and rapidly eliminated. The processes of repair and change of structure are thus greatly hastened. If the kidneys and skin are in fair working order, and the

stomach does not get irritated, the improvement is, of necessity, rapid.

Four, five, six, seven, and even eight hundred grains of the iodide have been given in the twenty-four hours, so we are informed. The stomach must first be guarded by demulcent drinks, of course.

The bin-iodide and corrosive chloride of mercury, inunctions with the oleate of mercury, and calomel vapor-baths are freely employed. We saw no case, heard of no case, of the cure of syphilis by the baths and drinking of the water alone. A few cases—one or two—of cure of chronic rheumatism by the waters, without medicine, were reported to have occurred.

The claim set up and defended so vigorously by interested parties, and by deluded patients, of the marvelous, even supernatural, virtues of these springs in the cure of chronic diseases is absurd in the extreme, when all the facts are considered.

If a physician is able to secure a perfect following out of his rules by his patient; can prevail upon him to drink the proper amount of hot pure water, and take as many hot water and vapor-baths at home, and will have the courage to give as much mercury and iodide of potassium *at home*, he can cure him as rapidly and effectually at home as at the Hot Springs.

There is one thing that the honorable, conscientious physician cannot do, however, he cannot impose upon the credulity of his patient, and gain the aid of those powerful co-operative agents; wonder and expectation, which the Hot Springs "resident physician" can do. These auxiliaries, too often despised, too often employed by the quack, to the benefit of the patient and the discomfiture of the honorable practitioner.

We give some of our Hot Springs confreres credit for being themselves the dupes of their own credulity in the matter of faith in the wonderful virtues of the waters. We can not believe that they are all dishonest. At the same time we can not believe that their faith is well founded. The weakness of their trust is fully demonstrated by the reliance they place upon the most potent agencies known to science, and their unwillingness to trust *any case* to the healing influence of the waters alone. —*St. Louis Clinical Record.*

Extract of Malt.

By E. R. PALMER, M. D., Professor of Physiology, etc., University of Louisville.

When extract of malt was first introduced into this country I had my atttention called to it as a therapeutic agent, but never gave it or saw any one who had taken it. I lost sight of it as a remedy. About five years ago I began to prescribe lager beer in certain cases, and have had many more admirable results that I could point to as following upon its use. I have found it of marked benefit in duodenal dyspepsia accompanied by constipation and emaciation, both of which it corrects; and also have frequently found it to be a panacea in cases of mental or physical exhaustion accompanied by fretfulness or irascibility and wakefulness. Only during the year past have I given the malt extract; yet the more I give it the better am I pleased with its therapeutic action in certain of the most common chronic maladies. In consultation with a surgical colleague I ordered "Trommer's Extract of Malt with Hypophosphites," in the case of J. S., adult, of strumous habit, afflicted with an old psoas abscess. The patient had taken cod liver oil previously. The improvement was very marked; the amount of discharge decreased rapidly, with a proportionate gain in flesh and strength, which soon enabled him to return to his bench as a cabinet-maker. When I last saw him, six or eight months since, he was still taking the remedy in question.

I was called, a few weeks ago, to see Mrs. O., suffering with bronchial catarrh, with a history of previous hæmoptysis. She had taken, under the direction of another physician, eight bottles of the Extract or Malt with Hypophosphites. I asked her what she thought of it, and her reply was that while it had not cured the cough it had entirely relieved her of a distressing dyspepsia and nervousness.

Mrs. B., suffering with post nasal catarrh, dyspepsia, and constipation, is taking the simple extract of malt with decided alleviation of all her symptoms, especially her constipation, which was a source of much trouble to her.

Sarah B., adult (colored), patient of Dr. Cottell, a sufferer from chronic malaria poisoning, and much broken

in health, began the use of malt and oil after a long and apparently fruitless course of bark alkaloids. Improvement was rapid and marked, so that she was soon able to resume her duties and go through with the arduous labors of spring house cleaning,

J. H. M., adult, male, with previous good personal history but bad family record, was seized suddenly, about six weeks ago, with hæmoptysis. In my absence he got of Dr. Cottell fluid extract ergot and gallic acid. The hemorrhage was checked for a day or two, and then returned; was checked and returned a third time, when he went to bed. He was delirious, and had a temperature of 103.5°, and a pulse of 130, night-sweats and cough, with subcrepitant rales throughout the right mammary region. I feared that I had a case of acute tuberculosis, and made a grave prognosis. I ordered carbonate of ammonia and morphine, and after a couple of days changed to syrup of wild cherry and chloral. After three or four days the delirium, which was never marked, passed away, and I ordered extract of malt and oil to be taken with wine. He protested that he could nor take oil. I assured him he could take the preparation ordered. He improved steadily, is out of doors, coughs but little, has regained his flesh and appetite, lost his night-sweats, and expects to go to work at his trade (piano-making) in a few days.

Sarah H. (colored), married but sterile, has a strikingly similar history, excepting the delirium. In her case emaciation was very marked, owing probably to the large amount of blood lost. She has taken so far four bottles of malt and oil, and is clearly improving in health and strength.

One case more: Mattie M. (colored), a school teacher, of large frame, weight before sick near about one hundred and seventy pounds, developed hereditary phthisis about eight months ago with all the usual train of symptoms, including laryngitis. She had an emulsion of cod-liver oil (an excellent preparation), with moderate improvement; also Churchill's Syrup of Hypophosphites; but the cough and hoarseness, with occasional slight hemorrhage, continued. About three months ago I ordered carbolic acid by atomizer for throat, and malt and oil internally, withdrawing all other treatment. In the last two months I have not seen her, except on the street and once in my office. She hardly coughs at all, has regained nearly all

the flesh she lost, has no hoarseness, and is regularly at her post in one of our public schools for colored children.

This last I deem the most remarkable case of all reported. The second stage of phthisis was well advanced, and all the graver symptoms which mark it were present. The usual treatment, including cod-liver oil and the hypophosphites, had been faithfully tried, with but slight improvement; while from the commencement of malt and oil improvement has been steady and marked.

This has with good reason been called the age of physiological therapeutics. The rapid and practical strides which physiology has been making are taken advantage of by the therapeutist as foundation stones upon which to base a system of rational medicine. The introduction of pepsin into pharmacy was an important practical application of physiological science, as also the more recent use of pancreatine in the administration of cod-liver oil, etc.

The introduction of malt into American practice, which has only become general since home houses have undertaken its manufacture, bids fair to play a more important part in physiological medicine than that of either pepsin or pancreatine.

Extract of malt is in the main two things, namely, digested starch and sugar and the digester of starch and sugar. Its other ingredients and properties may fairly be said to hold a minor rank in importance to these two qualities.

No class of food is of so great interest to the physiologist as that comprised in the "second class of proximate principles;" namely, starch, sugar, and oils. Of albuminous matter the neccessity and the use are readily apparent; but of these other foods, and especially so of the two former, to attempt a comprehension of the part which they play in the economy is to reach beyond the mere matter of tissue-building to the subtiler questions that enshroud animal heat and the other various and complex phases of vital force. Neither starch nor sugar can be considered as belonging to the tissue-making food, so vastly disproportionate are the amounts of them consumed to the mere traces of them which are to be found within the organism. They enter the blood only to disappear from it; and are in constant demand, being eaten at each meal. The following tables taken from Dalton give some idea of the amount of saccharine and amylaceous food one

consumes. And here let me remind, by way of digression, that starch as starch never gets beyond the alimentary canal; that by digestion it is completely transformed into glucose, or digested sugar, and as such enters the portal venous system. In view of this fact Flint, jr., does not mention starch as a proximate principle of the human organism, but treats of it as sugar:

COMPOSITION OF WHEATEN BREAD.

Starchy matter (starch, dextrine, glucose)	56.7
Albuminous matter (gluten, etc.)	7.0
Fatty matter	1.3
Mineral matter (calcareous, magnesian, and alkaline salts)	1.0
Water	34.0
	100.0

COMPOSITION OF THE POTATO.

Starch	20.0
Albuminous matter	2.5
Sugar and gum	1.1
Fatty matter	0.1
Cellulose	1.0
Mineral and vegetable salts	1.3
Water	74.0
	100.0

AN AVERAGE DAILY RATION.

Albuminous matter	(grammes)	130
Starch and sugar	"	300
Fat	"	100
Mineral salts	"	20
Water	"	2000

By these tables it will be seen that albuminous matter constitutes rather less than one-fifth of the entire food for a healthy adult in active occupation. No words are necessary after these facts to impress upon the physiologist the paramount importance of starch and sugar as articles of food, and the great necessity for their proper digestion and assimilation. In the normal processes of digestion the saliva transforms to a certain extent the starch into glucose; while this act is completed, not, as is stated by most writers on malt extracts, by the pancreatin juice, though this helps a little, but by the secretion of the duodenal glands (of Von Brun and Lieberkuhn); a viscid, alkaline juice, not copious, but endowed with the power of very rapidly and completely transforming both starch and the varieties of sugar into glucose $C_6H_{12}O_6$. The change for starch is a simple one; thus, starch $C_6H_{10}O_5$,

and water H_2O=glucose $C_6H_{12}O_6$. It is in the region where intestinal juice is produced (the duodenum) that digestion is most actively performed. Here the gastric juice finishes its work aided by the pancreatic juice, which also digests the fat; while many of the ills that are attributed to the stomach, and still more that are laid at the door of an absolutely healthy liver, arise from disorders of secretion and absorption in this which has been aptly called the lesser stomach.

The physican who in the management of dyspepsia addresses all of his treatment to the stomach proper will quite often meet with cases which he can not master. How many such cases there are; cases of duodenal dyspepsia, wherein the doctor, having failed in the use of pepsin and mineral acids and strychnia and quinia, deems the liver the offending member, and bends all of his energies to its subjugation. The prevalence of amylaceous indigestion and (excluding drunkards) the comparative rarity of liver-disease are not sufficiently recognized. The cure of obstinate dyspepsia by lager-beer (by no means uncommon), a remedy not at all calculated to benefit the liver, has done not a little toward teaching us to more carefully classify our cases of dyspepsia, and to treat them accordingly.

How far extract of malt is of use, and in what class of cases, are questions that time alone can answer for us. In Germany it is firmly fixed in the front rank among remedies. Some idea of what it may be used for may be gained by the following analysis of one of the brands of American malt:

ANALYSIS OF THE TROMMER EXTRACT.

Malt sugar (glucose)		46.1
Dextrine hop bitters, extractive matter		23.6
Albuminous matter (diastase)		2.469
Ash	Phosphates	1.712
	Alkalies	.377
Water		25.7
		99.958

The first of these ingredients is starch and sugar ready for absorption. The third (diastase) is the analogue of ptyaline (of saliva), and of the similar ingredient of intestinal juice. It is present, as will be seen, in nearly two and a half parts per hundred. In saliva ptyaline exists in less than seven and a half parts *per thousand* (7.352 Dalton).

I speak of diastase as the analogue of ptyaline. If it differs at all in its action from the latter, it is in the greater readiness and completeness with which it transforms starch into glucose. In malt extracts its properties are preserved, and the glucose retains its integrity; while in beer the process of fermentation has destroyed nearly all of these qualities, and produced alcohol, with, though to but a slight degree, its objectionable features.

Malt extract, with its combinations, has been recommended and deserves a trial in the following diseases: anæmia, chlorosis, marasmus, dyspepsia, neuralgia, insomnia, pulmonary and bronchial affections, dysentery, constipation, scrofula, convalescence from exhausting diseases, etc. It may be had combined with any of the standard tonics or alteratives, for which it makes an admirable vehicle.—*Louisville Med. News.*

Clinical Reports,

By R. L. Payne, M. D.

OPIUM POISONING.

During the last year I have treated four cases of poisoning by opium. With respect to the first and second there was nothing of special interest, except the fact, that I used belladonna as an antidote in both cases with good results. The third and fourth cases were especially interesting to me, and although one of them ended fatally, I will speak of them more in detail.

A lady, by mistake, gave her infant, four weeks old, one-fifth of a grain of sulphate of morphia. The dose was administered at 7 A. M., and I did not see the child until 11½ A. M. The little one was then completely narcotized. His extremities were cold, face livid, lips still darker, and pupils contracted to their smallest capacity. Anæsthesia was so complete that he gave no signs of sensation under the roughest kind of handling. The breathing was labored, and remarkably slow (even for opium narcosis) for a child four weeks old, there being only eight respirations in a minute. When his position was changed the head and limbs would fall about almost as limp as a dish-rag.

I attempted to give tinct. belladonna by the mouth, and by the rectum in strong coffee, but did not succeed;

if the child swallowed at all, I could not perceive it, and the sphincter was so much relaxed that the enema passed away immediately. I had no atropia, but injected eight drops of tincture belladonna under the skin. In a very short while after the belladonna was so administered, the pupils were considerably dilated, the color of the face improved, the heart beat faster, and the respirations increased to fourteen per minute. Cold applications were kept constantly to the head, and warmth to the feet. Watching the breathing, the pulse, the pupils, and the appearance of the skin, I continued to give the belladonna, occasionally, for several hours; but although the pupils were largely dilated, there was no other sign of improvement in the symptoms. Late in the evening the breathing became more labored; in fact, everything indicated the near approach of death. Now, the child only respired four times in a minute. I next resorted to magneto-electricity, putting one handle over the nape of the neck, and the other over the ensiform cartilage and epigastrium. Immediately there was marked improvement in the breathing, the respirations being increased to fifteen, and the color was very much better.

This state of things continued for several hours, and I was hopeful of its recovery; but suddenly the breathing became very slow again, and the infant's face almost black. Electricity would arouse it no longer, and the child died at midnight.

Two weeks ago, I was called to see another baby four weeks old, that had taken a teaspoonful of that miserable quack nostrum, Bull's Cough Syrup, instead of a dose of castor oil. In the printed directions on the bottle the dose for a child a year old and under is from two to four drops. Of course, I have no knowledge of the component parts of nostrums, and do not covet more, except as a toxicologist; consequently, I was somewhat in a dilemma.

I found the child, one hour after the dose was taken, very stupid, with cold, or rather cool, extremities, pupils contracted, blue about the lips and under the eyes, and respiring fourteen times to the minute. The child was in a comatose condition; yet the narcosis was by no means as profound as in the case above related. The symptoms all pointed to opium poisoning. I regarded it as such, and treated it accordingly. The case was first seen by me at 6 A. M., at which time it could still swallow, but swallowed

very imperfectly. I gave several emetics, which it swallowed with great difficulty, and I tickled the fauces persistently with a feather, but utterly failed to produce emesis. Failing in this, my next resort was four drops of tincture of belladonna by the mouth, and ten drops by enema, given in very strong coffee. Applied mustard sinapisms to the spine, the extremities, and the pit of the stomach, and cold water to the head. After the expiration of an hour, the child swallowed with still greater difficulty, and the coma was more profound. I now gave six drops more of the tincture of belladonna, and after great trouble managed to make the child swallow the dose. In less than an hour after this the pupils began to dilate, the respirations increased to twenty in the minute, and the color of the face and whole surface of the body was very greatly improved—in truth, a rose-colored flush somewhat suddenly overspread the entire surface, but was more apparent about the head and face. All the while the child was kept in constant, sudden, and what, under other circumstances, would have been painful motion. Frequently we gave strong coffee by enema. About 4 o'clock in the evening I gave an enema of spirits of turpentine, which in a short while acted freely; after which I injected belladonna and coffee into the rectum again. At 5 o'clock the breathing was still better, and the little fellow swallowed with greater ease. At 6 o'clock, he took the breast feebly, from which time there was a gradual improvement until about 12 o'clock at night, when he cried lustily.

There are certain times when we doctors love to hear the babies cry—this was one of them. Since that time the baby has done very well, and I think the belladonna was chiefly instrumental in saving him.

PRIAPISM AND IMPOTENCE.

Some eight months since a most remarkable case fell under my care—a case to me at least uncommon, if not unique.

When I first saw this patient he was suffering with a remittent attack, and while vomiting, had lost a considerable amount of blood from the stomach. This fever passed off readily in a few days under the use of quinine, and he seemed to have regained his usual health. About two weeks afterwards he sent for me again, and when I entered his room I found him sitting up, holding on with

both hands to his penis, which was in a state of most intense, persistent, and *painfully tonic* priapism. He told me that the organ had been in this state all night, and that he was suffering most acute agony. He was well in all other respects, and assured me that he had not suffered from gonorrhea, nor was there any evidence of it; the organ was not warped or crooked, as in chordee, but stood erect and straight. The patient was a married man, but he assured me that every effort at coition was not only futile, but added greatly to his suffering.

I prescribed sulphate of magnesia to open his bowels, and also opium and camphor, together with bromide of potassium, and chloral hydrate. And I directed him to use cold water freely locally; but in spite of all this medication, the organ continued *obstinately erect* for five days and five nights. I next gave morphia until the man slept soundly, but still the organ remained inflexible.

So long was this condition of things kept up, and so much was my patient exhausted by constant suffering, that I was fearful of his death.

I had just about concluded to resort to anæsthesia, and apply Esmarch's bandage to the incorrigible organ, when it fell; and great was its fall, because, apparently, "no sound shall awake it to glory again." For eight months it has been as completely collapsed as a dish-rag, with no sign of an erection. I have fed the patient well, have given him tonics, strychnia, phosphorus, and even cantharides, without any good result. His general health is remarkably good, but he has become morose, taciturn, and at times petulant.

The other day he came into my office and said, "Doctor, I am as well as I ever was in my life, but it, *it* is dead—'dead as a mackerel!'" To which I replied, "Perhaps you are correct in your opinion; but if it is dead, when you call to remembrance those five days and nights of erection, you cannot but admit that *it died game.*"—*Va. Med. Monthly.*

When a professor delivers a lecture on the Discovery of the Circulation of the Blood, at Columbus, he apologizes for Harvey's politics.

The Use of Ergot in the Treatment of Purpura.

Dr. L. Duncan Bulkley calls attention to the treatment of purpura by ergot, in an interesting paper, the principal points of which are as follows:

1. The treatment of purpura as advised in books is ineffective and tedious in lighter cases, and insufficient to save life in many of the severe or hemorrhagic cases.

2. Ergot possesses a very decided power in contracting the involuntary muscular fibre, causes divided arteries to contract, acts upon the smaller arteries and capillaries, and has been proved a valuable arrester of hemorrhage in many affections.

3. In purpura the action of ergot is very manifest, causing, when given in sufficient doses, an almost, if not quite, immediate cessation of the cutaneous and other hemorrhages.

4. The most effective method of administration of ergot is by hypodermic injection, and this means renders it peculiarly valuable in purpura hemorrhagica, where there is hæmatemesis, so that its administration by the mouth would be impossiple, or in cases where the stomach would not tolerate it.

5. While ergotin, a purified, watery extract, has been advised by many, and has been found to act efficiently in many cases, its action is liable to be uncertain by reason of age or faulty preparation, and after dilution with water it soon becomes inert.

6. Fluid extract of ergot may be administered hypodermically, undiluted, and without local accident, as abscess or inflammation, if care be exercised; and its effect is very prompt and certain.

7. Ergot may be thrown under the skin in any part of the body; the gluteal and shoulder muscles answer well, but the places to be preferred are about the pectoral muscles, or at the sides of the chest, about half-way down.

8. Severe cases of purpura require the frequent repetition even of very large doses, whether by the mouth or by hypodermic injection; both methods may be combined.

9. Generally one or two grains of ergotin, or from ten to fifteen minims of the fluid extract hypodermically, once or twice a day, are sufficient, but the former may be safely increased to five grains and the latter to twenty or

thirty minims, and repeated as often as every hour and a half.

10. Larger doses relatively are required when given by the mouth, and their action, thus given, is more slow.

11. No fear need be entertained of any untoward effect, an ounce of fluid extract by the mouth, and seven grains of ergotin hypodermically, have failed to give rise to any unpleasant symptoms; and from half a drachm to a drachm and a half of the tincture of fluid extract have been continued for several months without producing ergotism.

12. Other preparations of ergot may be employed internally, as the powder, solid extract, wine, or infusion, the dose being proportioned to the effect required or produced.—*The Practitioner.*

Case of Membranous Croup—New Method of Treatment—Recovery.

By ALEXANDER FULTON, M. D., of Conshohocken, Pa.

On the evening of the 22d of April I was called in great haste to see a child of W. L. Found complaint membranous croup, of which the child was apparently dying; skin cold and clammy; pulse rapid and thready; face pallid; eyes sunken, half open and fixed, and the breathing very difficult, with that crowing noise so peculiar to the affection; suffocation seemingly imminent.

Having had a number of cases of this terrible disease, all of which proved fatal, notwithstanding careful treatment according to our text-books, I determined putting into effect a new procedure, which I had contemplated doing in the very next case that presented itself, viz: I introduced my little finger into the child's mouth, over the tongue, until the epiglottis was reached, then pushed it into the larnyx, as I supposed, and still forward, whether between or beyond the vocal cords I do not know. Directly the child took violent fits of spasmodic coughing, followed immediately by the elimination of large mouthfuls of membranous exudation—very ropy—could be drawn like the white of an egg. The result was, the child on the very threshhold of death, became animated; the complexion almost natural; the eyes, that

were half opened and fixed, opened; and the breathing became less difficult. Relief was experienced until the next morning, when another paroxysm threatened. Again I went through the same procedure, followed by the same good result, and prescribed the following, as recommended by Dr. Thomas Drysdale in a former issue of the *Reporter*:

℞.—Pulv. potassæ chlor. ℨij; syrup limon, f.℥j; aquæ f.℥iij. M. Sig.—A teaspoonful every hour. Convalescence ensued with complete recovery.—*Med. and Surg. Reporter.*

The Louisville Medical College Suit.

A portion of the medical press has for nearly two years sought every opportunity to defame and slander the Louisville Medical College; truth, honesty, fair dealing, and every principle which should guide an upright mind have been persistently disregarded, and the foulest falsehoods have been systematically repeated and copied. This journal, wholly disconnected with the College named and uninfluenced by it in every way, notices the medical press reports of the suit indicated solely in the cause of truth and right, and because it is unwilling to see gentlemen whose professorial, professional and official character is the equal of the best unjustly and maliciously slandered.

In September last, Mr. Sale, a medical student and the plaintiff in this case, entered the college mentioned. He paid his fees. A few weeks subsequently he was offered (with others) free tuition in a Louisville medical institution. This offer was a part of the sworn testimony of the plaintiff. He accepted it and requested a return of his money. This request was of course not granted. He then asked for his tickets. He was told that this college never gave its tickets (the evidence of attendance upon a course of lectures) until the last month of the course. Had the tickets been given there would have been no "suit;" but they were withheld, and the suit invited. The plea in this suit was failure to comply with promises made. In the garbled version of the magistrate's decision published in the *Courier Journal*, and sent to the medical press everywhere, and to the alumni of the

Louisville Medical College, it is admitted that this plea could not be, and had not been, sustained by the evidence. The so-called "judgment" of the magistrate was given on the ground that the present faculty were not legally elected.

The Book of Minutes of the Proceedings of the Board of Trustees shows that members of the Faculty, with one exception, were not only legally elected by the present Board, but that one of the last acts of the old Board was to elect them before adjournment. It may be asked why was not this book produced and such "a judgment" prevented. The answer is simple; it was in possession of the persecuted secretary of the board of trustees, Dr. B. M. Wible, who was ill and soon after died, and was found after his death, and after the so-called "judgment" had been "rendered," and copies of it forced into a daily paper (which never publishes the petty business of a magistrate's court), and actively disseminated for purposes too evident to require indication. Several medical journals, whose editors are just and fair men, have been thus ingeniously led to become weapons of offense in the hands of those who have not scrupled to use them to the utmost. That they will do what is proper and right no one doubts. This puerile sham only needs a fair and honest analysis to be correctly appreciated. Brought as it will be before a higher tribunal, its exposure will be prompt and absolute. —*American Medical Bi-Weekly.*

Microscopy.

San Francisco Microscopical Society.

The regular meeting of the San Francisco Microscopical Society was held on Thursday evening, with a large attendance, called out, perhaps, from the fact of the distribution of tickets to the coming reception.

There were added to the Library, by subscription, the *Monthly Microscopical Journal* for April, *Quarterly Journal of Microscopy*, *American Journal of Microscopy* for March and April; Cincinnati Medical News for April and May, *American Naturalist* for May, *Popular Science Monthly* and Supplement for May, and five numbers of *Nature.*

Col. C. Mason Kinne presented some curious forms of insect life, which were obtained by Mr. Thos. F. Eyre, from a tree and rose-bush under the same, growing at Mazatlan, Mexico. They were mistaken by the casual observer for the thorns which are the proverbial necessary evils of the sweet smelling-rose, from the fact of the thorax being raised into a sharp pointed crest, which had the appearance and feeling of a veritable rose-thorn. Mr. Kinne remarked that the tree-hoppers (*membracididæ*) furnish many varieties of this peculiar form of raised thorax, but the varigated sharp crest curving upward and backward from the head of this, gives, perhaps, as beautiful and pointed an illustration as is often found of the genus. In the struggle for existance which has gone on for ages in the animal kingdom, the "mimicry of nature" plays an important part, and this little tree hopper, from its appearance and known habits, is a good example of the theory.

Mr. C. W. Banks exhibited a fine specimen of the *Dionæa muscipula*, or Venus fly-trap, with some of the leaves expanded; others fulfilling their purpose in the way of holding a number of unwary flies which had been enticed within the trap-like doors of the plant. Mr. Banks also exhibited a box of slides which he had just received from Mr. Charles Zentmayer, of Philadelphia, who has succeeded in doing good work in the way of the double staining of vegetable tissues, as the objects were found to preserve the peculiarities of the cell structure, and the color was distributed excellently.

Mr Hanks presented a slide mounted with crystals, to illustrate the following paper by him, on a device to be used as a

MECHANICAL FINGER.

I wish to call the attention of the Society, this evening, to a device for picking up and selecting minute objects under the microscope. In other words, to an improvised mechanical finger, which may be easily arranged by any person who possesses a first class stand.

Feeling the want of such an apparatus to pick out and arrange the interesting and beautiful crystals which occur in the washings from the hydraulic gold mines of California and in the black, gold-bearing sands of the sea coast, I was led to give the subject much careful study.

The elegant mechanical finger described in the *Amer-*

ican Journal, second series, vol. 49, folio 304, is not only expensive, but must be detached from the microscope and laid away when not in use, being for this reason inconvenient. Considering these defects I thought on a number of ways to simplify the arrangement, and finally hit on a plan to do away with all extra apparatus and still accomplish all that could be desired. The plan is so simple that I am almost ashamed to make it public. For aught I know it may be in use by a host of microscopists in different parts of the world, but I have never heard it mentioned, nor have I seen it described in any of the published works.

As I am sure the idea is new to our society, I will describe it as briefly as possible. Let the microscope be placed in a vertical position and a suitable object-glass screwed on. Fix the parabola in its place on the sub-stage. Let it be pushed as far in as possible so that when elevated by the milled heads it will ride through the opening in the stage, with its upper edge above the surface. As it will not be immediately required it may be depressed, using the milled heads for that purpose. A glass slide, upon which the rough matter is laid, from which it is desired to select an individual crystal or other object, may now be placed on the stage. The sliding pieces of stage must then be separated as widely as possible and the stage forceps fixed in the usual position. If the objects to be picked out are small, such as diatoms, etc., a human hair must be placed in the jaws of the forceps, and so arranged that it will appear in the field and near the surface of the slide. The objects to be selected should be as near the centre of the slide as possible. By turning the milled heads of the mechanical movements of the stage, the desired object may be centred, after which the hair must be readjusted without moving the stage. By elevating the sub-stage slightly, the slide will be lifted from the stage, the position of which can be changed by the mechanical movement, while the slide remains stationary.

When the end of the hair is exactly over the object, which is dimly seen out of focus, a turn of the milled head of the sub-stage lifts the slide until the object touches the hair and remains attached to it. When the sub-stage is lowered, the object remains suspended to the end of hair. The slide may then be removed and another sub-

stituted, to which the object may be transferred by simply elevating the sub-stage, the slide rising to meet the suspended objects If the slide has been gently breathed upon, the object leaves the hair and attaches itself to the glass. This applies only to minute objects. When the object is larger and too heavy to be lifted by a hair, it will be necessary to substitute a bristle, and to wet the end of it; when the second slide is placed under it, a few minutes will suffice to evaporate the moisture, and the object will fall into the desired position.

The hair may be used to push away worthless matter which may surround the object desired. It is perfectly easy to push any portion quite out of the field, simply by using the stage movements while the slide rests on the parabola.

If a piece of fine alumnium wire, the end of which has been flattened by a pair of steel rollers, be substituted for the hair, and a low power used, a crystal may be lifted with as much ease as a lump of coal on a shovel. To prevent the object from being pushed before the chisel edge of the wire, a small piece of glass may be placed in the direction of the movement, against which the object is held, while the edge of the flattened wire passes under it.

It will be found difficult to place a hair firmly in the jaws of the stage forceps. This difficulty may be overcome by cementing the hair or bristle between two small pieces of thick paper, which the forceps will hold rigidly.

Nothing can be more simple than this device, and I question if any mechanical finger can be more effective. A few minutes will suffice to make it perfectly understood.

Dunkirk (New York) Microscopical Society.

Meeting was held Tuesday evening, May 22d, Dr. G. E. Blackham presiding.

After the transaction of the usual business, Prof. J. Edwards Smith, of Ohio, read the paper below:

In the annual address of President Ashburner, delivered before the San Francisco Society, last February, I read as follows:

"To know how to use a microscope with skill is one

thing—but to know what you see with it is another, and a far more difficult subject."

These two conditions: First, of seeing well; and secondly, of judging well on what is seen, *are* of the highest importance, in many respects they are co-relative, and should be co-existent with all who desire to make advanced observations, they go "hand in hand" pari-passu, and the one ought not to be separated from the other.

We must first see well *before* it is possible for us to judge well, and as we judge from, and by, what we see, it follows that imperfections of vision, from whatever cause, will in turn bias our judgment.

It would be preferable to see an object well, even if we were powerless to judge of its physical properties, rather than remain totally blind as to its existence; but worse then all this would occur when we see an object so imperfectly, so untruthfully, that we in turn judge as to it under a delusion. This is a case truly, "where the blind lead the blind," and yet I venture to affirm that a full moiety of the published work done with the microscope during the last ten years, under powers above 500 diameters, are examples to a greater or less extent of the condition last named.

I submit: That it is of the *highest* importance that the microscopist, first of all, learn to see well; this accomplished, attention may be paid to judging of what is seen. It frequently occurs, too, that the importance of observations under the microscope lies in arriving at the technical description of an object. Thus, this has such a cell, one, two, or more compartments, nucleus, or non-nucleated? Questions of this character sometimes involve the highest interest, and are constantly arising, while the pathological or pathogenetic conditions are not at all under consideration. To solve problems of this class or character, is a direct appeal to the expert observer—to his ability to see well, and not particularly to his judgment as to the *nature* of what he sees.

It is my purpose in appearing before you this evening to present you with new methods of illumination, as, I hope, with new and valuable contributions to the science of "seeing well." Two instruments will be presented for your consideration, one of which the members of this society have had the opportunity of examining before—I refer to Beck's patent "Vertical Illuminator."

This instrument was used by many, in common by myself, I think, as far back as 1870, and, as proposed by its inventor, for the examination of objects by reflected light under medium powers, as are now termed, and with dry object glasses.

To George W. Morehouse, Esq., of Wayland, N. Y., belongs the credit of first using this illuminator in conjunction with the famed objectives of Mr. Tolles, and with the employment of amplification far beyond any anticipations of the inventor. Mr. Morehouse's paper descriptive of this instrument has been read before the society, and subsequently printed in the CINCINNATI MEDICAL NEWS; the observations and work therein recorded were at once repeated by myself without encountering the slighest difficulty.

Having thus obtained some experience with the new use of the illuminator, as set forth by Mr. Morehouse, it occurred to me that improvements could be made both in the instrument and illumination. After a little thought and study, I succeeded in adopting some changes which enable the vertical illuminator to cope with the severest tests, among which I name: the Nobert famous 19th band, Frustula Saxonica, from Prof. Smith's Diatom Series, No. 172, the illuminator giving simultaneously both the transverse and longitudinal striæ, Stauroneis Spicula, both sets of lines as with the Frustula, Suriella Gemma, into dots, or hexagons, scales of Podura, and of Deegeria Domestica, and many other objects of interest, all of which I am prepared to show you this evening, under powers ranging from 1000 to 4000 diameters, and in a manner excelling any result that I have ever been able to accomplish with transmitted light.

I may add, that as the illuminator deals exclusively with surface markings, it will also give information as to the surface structure, that could never be arrived at by transmitted light. Your attention will be further called to this before we part.

One of my most interesting test objects, namely, *human blood* disks, are shown by the verticle illuminator in a most remarkable manner, at once inconsistent with the teachings of the books. The matter is receiving my earnest attention, and I simply make this mention now, but at some future time, and after more mature study, I shall report the results to the society.

The other novelty referred to, until a better name can be found, may be called the new oblique prism; it is in fact a modification of the Wenham Reflex Illuminator, the facet of the latter having an angle of 20½ degrees, while the facet of the oblique prism is 18 degrees.

Thus it will be seen that the oblique prism is a direct illuminator, hence it can be used on dry or balsam mounts, and with any good wide-angled objective, it is in fact a most superior instrument for testing the work of wide angled glasses.

It may be also stated that the use of the new prism obviates any further necessity for thin stages. The instrument is not costly, and can be applied to any good stand.

The work obtainable by the use of the oblique prism is very superior; all of the before mentioned tests, including the same mounted in balsam, are shown by it in a most charming manner. Its resolutions of the Moller plate are quite as acceptable as those obtained with the Wenham "Reflex." Its work over human blood disks is truly remarkable, and I may add, not precisely in harmony with that of the vertical illuminator. As before stated, the matter is now engaging my serious attention, and will be again referred to at some future time.

It is to be remarked, that the *vertical* illuminator can only be employed over dry mounts, and even then preference must be given to such objects as contact the cover. The Wenham Illuminator can only be used in connection with objectives having high balsam angles, and over balsam mounts, from all of these conditions the new oblique prism is free; perhaps it might with propriety be termed a universal illuminator—you shall see its work, and judge for yourselves.

Referring again to the vertical illuminator, I desire to call your attention to the fact that this instrument attacks entirely surface markings; it therefore obtains that the slightest error in the focussing will cause defeat. It is, last of all instruments, the least fitted for public demonstrations. Individual differences in vision are always, to some extent, disastrous. When using transmitted light I am in general able to make the display so vivid that slight differences in eyesight will not be attended with total defeat; moreover, objects like the Nobert 19th band, or the No. 20 of the Moller plate, are very well shown a

trifle within or without the true focal plane, and almost anyone, who is possessed of a tolerably good eye, capable of recognizing the teeth of a fine toothed comb at from 8 to 11 inches distance, will hardly suffer disappointment. But with the vertical illuminator the case is different, the object must be in exact focus to the observer's eye. I name this because you will to some extent, when we are using the vertical illuminator, be compelled to do your own manipulating

In conclusion—This is my third visit to this society; I rejoice to meet with you again. All of my associations connected with Dunkirk are of the happiest order; your President and Secretary—many of your members, and their citizen friends, all have united to render my visits truly pleasant and enjoyable. It seems to me, when in Dunkirk, that I breath an atmosphere of pure oxygen.

To morrow evening I shall visit the Buffalo Society. It was my good fortune to meet with some of their members on my first visit to you. The fact that I am to meet them all, in General Convention assembled, fills me with lively anticipations. With my best wishes for the success and continued prosperity of both societies, I will now no longer trespass on your time and patience.

The reading of Prof. Smith's paper was listened to throughout with marked attention, and at the conclusion he was greeted with a generous burst of applause.

The microscopes were then brought out, tables arranged, and lamps trimmed and lighted, and the exhibition of objects magnified from two hundred to two thousand diameters, began in earnest. Much of the interest centred around the side table where Prof. Smith was exhibiting his new methods of illumination, showing numbers, 18, 19, and 20, in the Moller Type Plate, fully resolved with a " Tolles " one-tenth immersion and his new prism. Also Nobert's nineteenth band, as an opaque object, with the same lens, and his modification of Beck's Illuminator. The professor was entirely successful in his manipulation, as he always is, and the tests shown were entirely new, and have puzzled many noted microscopists.

On the centre table Henry Mills, Esq., of Buffalo, set up a Crouch binocular microscope, and delighted a large circle of admirers with his display of handsome and interesting objects; while a little further on Dr. Armstrong's

"Zentmeyar Army Hospital" microscope was receiving a large share of attention. Mr. Fries, of Friendship, made an interesting display with an instrument of the same make as Dr. Armstrong's.

Mr. Chas. Fuller, of Jamestown, exhibited a Swift binocular microscope, and several accessories, made after his own ideas, among which may be mentioned a new adaptation of analyzing prism to use polariscope with polariscope and a gonoimetrical stage.

Dr. Blackham presided over a binocular—the make of which we failed to ascertain, but which belongs to Dr. Carpenter, of Forestville. The Doctor's fine new instrument is not yet completed.

Prof. Harkins was on hand with the McAllister microscope purchased for use in the public schools. Dr. C. P. Alling was happy while manipulating his new Tolles Student's microscope, with which we suppose the Doctor will make some startling discoveries before long.

Mrs. O. N. Shelton exhibited some interesting specimens with a Queen's educational microscope; and Rev. E. P. Adams made things look big through a Spear's small microscope.

The instrument used by Prof. Smith in his exhibitions was one of the celebrated Grand Americans, made by Zentmeyer, of Philadelphia, and with its accessories is probably one of the finest Microscopes in the country. At a late hour, and after a very pleasant time, the meeting adjourned, and the general verdict of those in attendance is that they were fully compensated for the time spent.

Prof. Smith appeared before the Buffalo Microscopical Society Wednesday evening, and we imagine that he showed some of the old hands there some wonders in the art of manipulation.

During the next season the Society will give another series of their pleasant and instructive meetings, and we doubt not that our citizens, lucky enough to secure invitations, will avail themselves of the opportunity to learn more of the microscope's mystical power.—*Dunkirk Tribune.*

Preparing Vegetable Tissue for the Microscope.

DR. J. A. THACKER;

Dear Sir—It has for some time been lying around loose in my mind to give publicity to my method of preparing vegetable tissue for examination under the microscope. I am sure many of your readers would be interested in knowing how those slides are made about which they are occasionally hearing rumors. With your permission, I will try to let them know what I have acquired on the subject.

A preliminary remark of some length will have to be made.

Dr. J. G. Hunt, an unquestioned authority on the microscope, has lately, it seems to me, done us workers (including himself) some injustice, by relegating us to a paleozoic age, because we do not always show the nucleus, or nucleolus, or the chlorophyl in our preparations. To thus make us objects of geological investigation tends, he ought to know to discourage us; for we have, all through our often labyrinthine wanderings, been sustained with the thought that, dark as it frequently seemed to be round about us, we were shedding some light for others. Happily, (at least, for ourselves,) we have no marked tendency towards discouragement. If, at any time, there are symptoms of giving out in the knees or back, we have only to compare a colored saxafraga sarmentosa leaf, or a begonia ricinifolia leaf with a living one, or even a colored section of either with a fresh one from the living leaf, to straighten up from the microscopical contemplation with an all-pervading complacency, and with a smile of mixed significance. In the living specimen, (begonia, for instance,) we, with the utmost scrupulously careful illumination, have been able to see, as through a glass darkly, some colorless hairs, and one layer of cells enclosing vague groups of granular matter; also dim suggestions of spiral vessels, so called, encased in colorless vascular tissue; and, lastly, occasional stripes of something laterally accompanying these spirals, Now, putting a prepared specimen under the glass, and turning on the light from below, what a difference? The hairs are of a soft, luminous blue, and every cell can be studied, so far as form, or reciprocal relation of form, is concerned, as

one can steady the palm of one's hand. By slowly lowering the objective, no less than six layers of cells are shown, each with nearly the same distinctness as if that layer were alone on the slide. The spirals being red, are brought out with a precision that makes them look as if wrought from some fine metal. The dark, laterally situated stripes, now red and exquisitely translucent, are seen to be curiously thickened cells. Embeded in the parenchyma (the saxafraga, this time) are groups of the most beautiful quadrangular (brilliantly stellate) crystals in nature. It is true, we look in vain for chlorophyl or protoplasm; but would their presence be any addition? Would not the former hopelessly obscure the view? and would not the latter be dead? In short, if we want to study protoplasm and chlorophyl, is it not far better to take such living plants as most clearly exhibit those features, and study from them? On the other hand, if we wish to study the crystals, or the form of prosenchyma of sclerenchyma, fibro-vascular tissue, pitted cells, dotted ducts, spirally thickened, or any other of the multifarious forms of thickened cell, is it not decidedly better to *prepare* the object?

With such geniality as lies handy to us, we would say to your respected contributor that we really belong to the present geological age, even to the present race *homo;* and that, however dead our prepared objects are, (albeit often seeming alive, for I have known a prepared drosera rotundifolia, under eighty diameters, to frighten an intelligent boy,) we are lively enough, and firmly believe that our work greatly facilitates the study of microscopic botany.

Thus ends the long remarks. The technical information I wish to convey is as follows:

The first thing to be gravely considered is dishes. There should be three glass jars, with smooth bottoms, holding half an ounce each; two milk-glass jars of about the same capacity; two morphia vials; an earthen bowl, holding a quart; a small tin strainer. This is the least possible outfit for preparing the tissue in question. The remaining appliances for mounting are pre-supposed.

Pick the leaf with care, (one, say, a half or three-fourths inch long,) handling it always by the stem end, and with tenderness, so that pubescence of any kind may not be lost, and the epidermis receive no bruise. Put the leaf in water for two or three hours; then into common alco-

hol for about the same length of time; then into a morphia vial, into which pour of Labarraque's solution enough to well cover the leaf, corking closely. At intervals of a few hours gently shake the vial. As soon as the chlorophyl has disappeared, which, according to the nature of the leaf, will take place in from two hours to seventy-two, remove the leaf to about a pint of clear, cold water. This water should be changed every three or four hours, and the leaf kept in for at least twenty-four hours, and at most, forty eight. For example, an *ancuba japonica*, or a *magnolia grandiflora*, should, because of their density, remain in the water forty-eight hours, with five or six changes. The thinner and less dense leaves, as *momordica balsamia*, *oxalis*, or *drosera*, should not lie longer than twenty-four hours.

The leaf being washed, it is placed in com. alcohol in a jar, enough to cover it. In this it remains for twenty-four hours. After an immersion of one hour in fresh alcohol it is ready for the dye.

Sections of leaf, petiole, or twig, require from two to twelve hours in the solution. They may be removed when the natural color is gone. If they contain much thickened cells, they may remain five or six hours longer. Sections are washed just like leaves, not needing, however, so many changes. Being cleansed of the solution, they are placed in com. alcohol for several hours; then into absolute alcohol for at least one hour. If very open in structure, like the *pontederia*, they should lie four or five hours in ab. al.

SINGLE STAINING.

For a single color, logwood is probably the best. That prepared according to Arnold's formula, being redder, is most satisfactory.

A small quantity is poured into a jar. The object is immersed for two or three minutes in alum-water, then placed in the dye, where it remains, until, on lifting it out, it is found to have quite a dark hue. It is then removed to clear, cold water for ten minutes; then change the water, carefully brushing the object with a camels-hair brush; then remove to com. alcohol for two hours; after that to ab. alcohol for one hour; to oil of cloves, until, on holding it to the light, it scintillates in every part. Then mount in balsam.

This is the formula for preparing the carmine dye:

Carmine	24 grs.
Aqua ammonia	72 drops
Water	4 oz.
Alcohol	8 drs.

Pulverize the carmine; put in a test-tube; add the ammonia; bring twice to boiling point. Set aside for twenty-four hours, uncovered, to allow the ammonia to evaporate; add then the water and alcohol, and filter.

Before putting the object in the dye, dip it for a few seconds in water. To obtain the proper depth of hue, the object should lie in the dye from three to five hours. Ferns, buchu, and leaves of similar structure, may be stained in from two to three hours.

When the hue has become tolerably pronounced, the object is placed in com. alcohol, where it is immediately brushed with care, yet thoroughly, and passed to ab. al., to lie from one to two hours. Changing the alcohol once is advantageous. Then to oil of cloves, as above, and mounted.

Of the anilines, blue is the best color to use alone. This dye is prepared by putting four grains of the powder in one oz, of com. alcohol, previously triturating the powder thoroughly. If the powder does not readily dissolve, add one drop of nitric acid. It is better for the color to use no acid, as that ultimately produces a reaction; but some brands of aniline are so far insoluble in alcohol as to make it necessary to introduce a quickening agent. It is true, all the anilines readily dissolve in water; but he who has used a water-dye for coloring leaves is very likely willingly to leave the subsequent use of it to others.

Remove the object from the alcohol to the dye, and let it remain there until, on examination, it is found to have reached the desired depth of hue; then, after letting it drip a moment, place it in oil of cloves, to be mounted like the others.

I apply oil of cloves by dropping it fresh upon the object until the saturation is complete.

DOUBLE STAINING.

My attention was first called to the possibility of distributing two or more colors through vegetable tissue by the result of staining a leaf in freshly mingled aniline

blue and poke-berry juice. The hairs were purely blue, while the other portions were of different shades of red. Not duly appreciating my discovery, I neglected it for several months. I ultimately instituted a series of experiments with various forms of mingled dyes, producing results so entirely satisfactory, that I have never since stained with a single dye. My method, now perfected by long practice, is this, for anilines: The required quantity of dye is dropped into a jar, in the proportion of one drop of red to three, four, or five—in some rare cases even eight drops of blue, both dyes being of the same strength. For tissue which rapidly absorbs color, such as the ferns, the drosera, the pinguicula, and the like, I prefer one to three; for tissue that takes color slowly, as laurus, ancuba, oleander, etc., the proportion of blue should be greater. It is idle to try to give exact proportions, as the experimenter will soon perceive. If the dye is of full strength, four grains to the oz., the first class of objects are sufficiently colored in one minute; the second class may remain in from fifteen minutes to half an hour. They should, however, be carefully watched. I prefer diluting the dye by adding alcohol, eight drops to one of the dye, and strengthen the latter by dropping in fresh dye from time to time in the proportion mentioned at the beginning.

The required hue being reached, treat the objects as those in one color are treated, except that, if there seem to be too much red, immerse the object for a short time in ab. al. It is well always to examine an object in oil of cloves under a moderate power. If the surface be very tender, this should be done without a cover. After the ab. al., return to clean oil of cloves, to be mounted after a minute or two.

Sections are best treated with dye of one grain to the oz. Most sections require only from five to ten seconds immersion—rarely ten. Otherwise the manipulation is the same as with leaves.

A compound dye of carmine with aniline green in powder I have found excellent in some leaves, as the deutzias, mature laurus, pocolonia, momordia, etc.; and, for some sections, such as most woods, for longitudinal sections of petiole, or transverse sections, where the spirals are marked, as of the axilla of ricimes communis, I prefer it to other combinations. As the quantity re-

quired for any given staining is a good deal less than a grain, and as the anilines differ in strength, no formula can be given. I usually put six or eight average granules of the powder in twelve drops of carmine, stirring well together. Green may be mingled in the same manner with logwood.

Objects are treated the same as with carmine alone. If the carmine be quite strong, less time will answer. Sections can be suitably stained in from ten to thirty seconds. If the green be too dim, or incline to purple, increase the quantity of aniline powder.

For brilliancy of effect under the glass, with artificial light, nothing is equal to a dye compounded of aniline, green, and pokeberry juice; but most unfortunately the latter is in most tissue very transient. *All compound dyes must be used as soon as mingled.*

As leaves and sections are always covered with dirt of various kinds, they should be thoroughly brushed just before mounting. This is best done in pure spirits of turpentine. From the turpentine the objects can be mounted. If slides are to be sent away, the objects should, before mounting, be placed in turpentine for half an hour. Sections, however, should be returned to clean oil of cloves for a few moments after brushing, as it adds much to their brilliancy.

In penning the foregoing I have taken for granted that the reader has had some experience in mounting in balsam, or can readily lay his hand on a suitable manual. In a subsequent article I shall describe my manner of mounting and finishing, giving other information of probable interest. Meanwhile I remain yours very truly,

L. R. PEET.
428 N. Carey St., Baltimore, Md.

A Letter from E. Gundlach, Esq.

Rochester, N. Y., May 17th, 1872.

BAUSCH & LOMB OPTICAL CO.

Gentlemen—I think I owe it to myself as well as to you not to permit the remarks contained in a foot note to Dr. Hunt's article on Microscopes at the Centennial Exhibition in Philadelphia, which appeared in the Cincinnati

MEDICAL NEWS, of March, to pass without a few remarks on my part. The note in question is as follows:

"It is stated in the *Naturalist* for December, that a firm from Rochester, New York, 'hinged the sub-stage bar at the level of the object,' but the small stands exhibited by said firm at the opening of the exhibition were not so made, nor had they any facility for registering obliquity. The firm in question did not grasp Zentmayer's idea at all, and hence can justly claim no priority of invention."

For obvious reasons, the "firm from Rochester, N. Y.," mentioned in the above note, can be no other than the Bausch & Lomb Optical Co., of this city, and as the microscope department of your company has been under my sole superintendence since you began making these instruments, it must be myself individually who, in the opinion of the writer of said note, failed to "grasp Zentmayer's idea." Feeling thus my integrity called in question, I beg leave to submit to you, and to the public generally, the following statement:

As early as towards the close of the year 1875, and before I had the pleasure of forming your more intimate acquaintance, I had already communicated to Prof. Phin my intention to add the construction of improved stands for microscopes to the business I had till then exclusively followed since my arrival in this country, viz., the construction of objectives.

The projected improvements embraced, among others, my now well known fine adjustment, a modification of the glass stages used by many opticians; and finally, the hanging of a swinging bar, carrying the mirror and other illuminating apparatus, in the plane of the object.

The construction of a stand with all the above named improvements was begun about the end of January, 1876, in the factory of the Bausch & Lomb Optical Co., after my arrangement with your company had been effected. In the construction of that stand I had in view the employment of a solid glass stage (not open in the centre) expecting to gain thereby the advantage of very oblique illumination in consequence of the refraction at the surfaces.

In order to obtain practically the optical object I had in view in placing the centre of rotation of the illuminating apparatus in the plane of the object, I had to take

this refracting power of the solid glass stage into consideration, and consequently had to place the central point of rotation as much under the actual (mathematical) plane of the object as the glass stratum of the stage would have lifted the ray.

Convinced, however, by the criticism of competent judges, and by my own observations, that the solid glass stage (without central opening) offered optical disadvantages which neutralized to a great extent the benefits which could be derived from it, I subsequently abandoned glass stages of that construction, not, however, before a number of stands had been either constructed, or were in the course of construction, arranged in regard to the hinging point of the illuminating apparatus, in such a manner as to suit a solid glass stage. The point selected by me for the centre of rotation of the illuminating apparatus in these stands would have been optically the correct one, if a solid glass stage of my construction had been employed.

The stands whose construction was complete at the time, and those then in process of construction, were not altered, firstly, because it would have involved considerable expense to do so; secondly, because I deemed the deviation from the actual plane of the object so slight as to be of very little consequence, especially as the actual and mathematically correct plane of the object is variable, owing to variations in thickness of the glass slides, and therefore practically unattainable for the center of rotation, unless said center can be made adjustable to it.

Of these stands, so made and left unaltered, one was sent, with other microscope stands of our make, to the Philadelphia Exhibition, and was there at the opening of the same, and the examination of this stand may have given rise to the impression that I intended to place the center of rotation of the illuminating apparatus lower than the plane of the object. The other stands, constructed with a view to using the glass stage, with central opening, and having the swinging mirror bar hinged slightly above the upper surface of the glass stage, were unfortunately not quite finished at the time the Exhibition opened.

What I contend for and stand ready to prove is, that stands of my construction, exhibited at the opening of the Philadelphia Exposition, had the arrangement of the swinging mirror bar (with diaphragm attached) hinged in

the (as near as attainable) optically correct plane of the object, with a view to the use of a solid glass stage without central opening, and the change necessary to fit the same for the use of stages of different descriptions was simply not then effected for want of time.

Other stands were then in process of construction, arranged to meet the altered circumstances, and were afterwards exhibited at the Centennial Exhibition in Philadelphia, all of them conceived by me, and executed under my superintendence, before I had seen or heard of Mr. Zentmayer's efforts in the same direction.

I may not be the only, nor the first, inventor of this arrangement, and the very moderate amount of inventive faculty involved therein makes it easy to believe that others have conceived the same idea at the same time, or even before me. It is far from me to disparage the honest efforts of others, and to charge plagiarism on any one; but I believe I am pardonably sensitive when such a charge as is contained in the foot note to Dr. Hunt's article is brought against me, a charge which, as you yourselves well know, is utterly groundless, and entirely inconsistent with the facts in the case. I remain, Gentlemen,

Very respectfully yours, E. Gundlach.

Gleanings.

Treatment of Scabies by Carbolic Soap.—During the past six years, Dr. Buchanan, of Chatham, has been treating patients in the Medway Union Hospital, suffering from scabies, in the following manner: The clothing is disinfected. The patient is put into a hot bath, and then thoroughly soaped with carbolic soap (1 in 20), the lather being allowed to remain on for a quarter of an hour; at the expiration of this time it is washed off, and the patient thoroughly dried; one application is often sufficient to destroy the acari, but generally it takes three washings to effect a cure. In private practice, this treatment is far preferable to the old one by compound sulphur ointment, that remedy being almost as offensive as the disease.

Extract of Logwood as a Disinfectant.—H. Mallory, of Ohio, says, for twelve years I have used Extract of Logwood for a disinfectant and deodorizer in cancer. I use

it in the following manner:—Powdered logwood and hog's lard, of each two ounces. To be mixed and made into a pomade, spread on lint and applied to the sloughing ulcer; the effect is magical, all the odor will disappear in half an hour. The astringency of the logwood will suppress the discharge. No other known agent will fill the indications so well, and yet I have not found a single member of the profession who had any knowledge of the agent until I suggested it. Will some of your numerous readers give it a trial and report the results.

THE SUBSTITUTES FOR QUININE.—Since 1866 the government of India has appointed several commissions to examine the therapeutic values of the different alkaloids extracted from the cinchona bark. Of 1,145 patients treated:

410 took	cinchonine,	and 400	were cured,
359 "	cinchonidia,	" 346	"
376 "	quinidia,	" 365	"

or in all 1,111 were cured. From these facts the commissioners at Madras, concluded that the effects of the three alkaloids differed little from those of quinine, for which they can be readily substituted. Cinchonine and cinchonidia can be manufactured for one-third the price of quinine. Cinchonidia is said to agree better with some stomachs than quinine; it is also said that it does not cause cinchonism, but this is an exaggeration. In general, however, it does not cause this unpleasant symptom, unless the dose be considerably above the average dose of five or six grains.—*Lyon Medical*

DEATH UNDER THE ADMINISTRATION OF NITROUS OXIDE AND ETHER.—A death has recently taken place in London at University College Hospital during anæsthesia from nitrous oxide gas and ether, being, we believe, the first fatal case which has occurred in this country that can be attributed to this combination of anæsthetics. The patient was a woman, fifty-five years of age, who was admitted to the hospital in consequence of strangulated femoral hernia. When admitted she was in a very weak and exhausted condition from constant vomiting, the hernia having been strangulated for over forty-eight hours. She was taken into the operating-theater, and gas and ether administered by means of Clover's apparatus. In about four minutes

she was well under the influence of the anæsthetic, without having exhibited any previous excitement. Taxis was then applied, when almost immediately the patient became pale and recommenced vomiting stercoraceous matter. At the same time the respirations became weak, and the pulse at the wrist imperceptible. The doors and windows of the theater were at once thrown open, and artificial respiration was carried on for a few minutes. As no obvious benefit resulted, an enema, containing three ounces of brandy, was administered. Fumes of strong ammonia were applied to the nostrils, and ammonia injected into the right median basilic vein, but all without any good result, and the patient died within about ten minutes from the onset of the alarming symptoms. At the autopsy, stercoraceous matter was found in the trachea and right bronchus. The right side of the heart and the large veins were full of dark fluid blood. The ventricular walls were thin and flabby, and the cavities slightly dilated. The left ventricle was empty. The arch of the aorta presented numerous patches of atheroma.—*Med. Times and Gaz.*, March 17, 1877.

The Ether Spray in Post-Partum Hemorrhage.—Mr. W. Handsel Griffiths, of Dublin, reports in the *Practitioner* the use of the ether spray in two cases of post-partum hemorrhage, in which the usual means of arresting the flow had been resorted to without effect. He directed the spray over the abdominal walls, along the spine, and over the genitals. In both cases the uterus contracted immediately, and hemorrhage ceased.

Constipation and Fecal Accumulations following Febrile Diseases.—The effect of fever is to dry up all the secretions present in the intestine; consequently a very common complication, when a patient is making a recovery from pneumonia or any other disease in which fever has been a leading element, is an accumulation of fæces at different parts of the intestinal tube. In former days, when fevers were treated upon the plan of administering medicines which were to eliminate the poison from the system by way of the bowels, scybalous accumulation did not occur very frequently; but now-a-days, when the treatment is conducted upon an entirely different plan, the fever may be continued and retained as the direct result of fecal accumulation. This is especially

true of the latter stages of a fever; but such accumulation can be prevented from forming, and be removed by the use of a proper kind of cathartic. For this purpose there is no combination more serviceable than the compound jalap powder, and it is the one which should by all means be employed. It promotes the discharge of the serous elements into the intestine, assists in the absorption of the deposits which have taken place in the lung, if the case be one of pneumonia; also acts upon the kidneys as well as the bowels, and is one of the mildest that can be employed which so fully meets the indications in this class of cases.—*Prof. Thompson in New York Medical Record.*

ANEURISM TREATED WITH TAN POULTICES.—In the London *Medical Times and Gazette*, November 4th, Dr. W. Arding writes: As the medical treatment of aneurism has only partially, if at all, engaged the attention of medical practitioners, I beg to bring to your notice a case of such disease treated by me some years ago. The patient J. S., of middle age, was affected with difficulty of breathing, particularly when at work as a shoemaker, and at the same time was affected with a pulsating tumor in the epigastric region, at the scorbiculis cordis, quite evident to the sight. His general health was good in all other respects. After applying some topical remedies without any improvement, at last I suggested the application of tan poultices to the pit of the stomach. In a few weeks the disease, apparently, was perfectly cured, but I lost sight of my patient, he having left this town for Reading, since which time no further accounts have been received of him. The *rationale* of the treatment must appear, I am happy to say, evident to every one; an astringent application, externally applied, having successfully produced a deposition of fibrin, internally, in the diseased artery, so as to almost astonish me with its favorable result.

THE DIAGNOSIS OF PARALYSIS OF THE MUSCLES OF THE FOREARM.—To distinguish saturine paralysis from paralysis produced by an affection of the radial nerve, M. Hardy points out one characteristic sign. In radial paralysis the supinator muscles are affected as well as the extensors, while in lead paralysis the extensors only are affected, and this explains why the patient can carry the hand supine.—*Medical Press and Circular.*

Editorial.

Elixirs.—These preparations have become quite popular among physicians, as they form the most agreeable method of administering medicines. A great draw-back, however, in their use is that, as prepared by many houses, they do not represent the quantity and quality of the remedies as are set forth. We recently had analyzed the elixir phos. quinæ et strychniæ of a New York firm, of considerable repute, and our chemist reported that the preparation contained only about one-eighth of the amount of quinine as stated. In other words, instead of there being one grain to the drachm, there was only about the one-eighth of a grain. Such preparations are miserable frauds, and the profession should discard them.

In consequence of so many of these preparations being fraudently made, we have had some hesitation in advertising them, even in cases in which the manufacturers are regarded reputable. But we believe that all of our present advertisers, who prepare them for physicians, make them *honestly*. Recently, we addressed a note to Messrs. Buntin & Armstrong, of Terre Haute, whose advertisement appears in our advertising form, as to the *honesty* of their elixirs, and they promptly requested that we ourselves procure in Cincinnati a specimen of any of their preparations and submit it to a chemist for analysis, promising to pay the cost of the same. So far we have not done so, feeling quite sure from their ready consent to have them tested, and pay cost, that their elixirs are as represented. The firms, too, of W. J. M. Gordon, of this city, W. R. Warner & Co., of Philadeldhia, Keith & Co., of New York, are all firms which manufacture pure and reliable preparations, whether elixirs or not.

University of Pennsylvania. — "The following has been furnished us as the official statement of the changes in the medical department of the University of Pennsylvania. It has been resolved that hereafter all students shall be required to attend three courses of lectures of five months each; that the studies shall be graded so as to be adapted to the acquirements of each successive class; and that examinations shall be held at the end of each

course, so that the students may be freed from the further consideration of such studies as have been concluded.

"There will be no preliminary examination for admission. The Professors hereafter will be paid salaries so as to be independent of the size of the classes. The above arrangement of studies will enable the third year to be devoted chiefly to the study of practical branches. It is proposed that these shall be taught in a more thorough way than has ever been done in America.

"The fees will be $120 for the first and second years each as heretofore, and $100 for the third year. The above charges will not affect in the least the status of the present matriculants of the school, who can complete their studies and graduate upon the old plan, unless they elect voluntarily to pursue the improved class.

"The vacancies which have recently occurred in the medical faculty will be filled early in June by the appointment of teachers of eminent reputation.

"The University is already being nobly sustained in this effort by the aid of liberal citizens, without whom the step could not have been taken—a step, we may add, which every intelligent physician in this country has long desired, and which they will welcome and support in such fashion as to show how clear-headed Americans value well applied enterprise, and the courage which can venture to urge the medical schools of oldest traditions on a path which, soon or late, all the other colleges must follow."—*Exchange.*

WANTED.—The Industrial Society of Rouen has just offered prizes to those who desire a means of producing the following: A substance capable of replacing albumen of eggs in all its applications to printing of tissues, and considerably cheaper; new source of albumen, either in natural products containing it, or by transformation of other proteic matters; a new dark color as intense and solid as aniline-black, but not weakening the cloth, and capable of being printed with any other colors without alteration at the point of contact; a method for volumetric determination of commercial glycerine; a solid blue coloring matter, applicable like indigo, but cheaper; new process for fixing indigo blue by steaming; new method of fixing aniline colors; a new thickening matter to replace

Senegal gum; production of ozone in the concentrated state; new application of ozone; industrial production of oxygen; rapid and exact means of determining the reducing power of a coal or any carbon; utilization, in metallurgical or ceramic arts, of iron pyrites, desulphurized by roasting; process of concentration or precipitation of nitrogen and phosphoric acid in fecal matters, urines and sewage waters, yielding a manure of at least 5 per cent. nitrogen and 20 per cent. phosphoric acid.—*English Mech.*

THE EXTENSION OF THE PLAGUE.—Our recent English medical exchanges mention, with undisguised apprehension, the fact that already early this spring authentic observers state that the plague has broken out in Bagdad, and is rapidly increasing there; and information from other sources renders it probable that the disease has shown itself in other places in the vicinity of that city, some of which have not suffered before since the new development of the disease in Mesopotamia, three or four years ago. The progress of the epidemic in and about Bagdad last year shows that each year since its re-appearance in that district it has covered a wider area, and it will be remembered that last year it crossed the Turco-Persian frontier, and broke out at Shuster, in Khuzistan. From the phenomena of the epidemic to this period it was feared, especially by the physicians on the spot, that, if it should recur in the present year, it must be expected to extend over a still wider area, and show itself in even a more aggravated form than had yet been observed. This opinion is concurred in by Surgeon-Major Colvill, the medical officer attached to the British Embassy at Bagdad, and is expressed in his official report on the subject of the last and previous year's outbreak.

The Turco-Russian struggle in Asia Minor, and the massing of Persian troops on the western frontier of that country, add an additional and most grave factor to this ominous intelligence.

It has been so long since Christian Europe has suffered from this terrible disease that most medical men have never seen a case, and, indeed, for a while, epidemologists flattered themselvss it had "died out." They yet say that a thorough system of sanitation will certainly check its advance.

Let us hope so; for of all pestilences which have ever scourged humanity, and desolated empires, none approach in magnitude those of the plague. Under the name of "the black death," it fills, as Hirsch remarks, one of the darkest pages in the history of the human race. It devastated every known country of the earth, and penetrated to the remotest mountain hamlets and granges, sometimes sweeping away, in a few days, every inhabitant, leaving not one to remember the name, or to inherit the goods of the family, or the village. Long years afterward, travelers would come upon these unknown villages, the houses rotting, the bones of the plague-stricken owners bleaching in the rooms and streets, and no one to say who they had been.

As an epidemic disease it no doubt spreads from India, that mother of pestilences, where, in the provinces of Kutch and Guzerat, it is found as an endemic of great malignancy. Far more fatal in its historical appearances than the cholera, it is well that the medical mind of Europe is on the alert to meet its approach with the most energetic measures; and should they fail, it will devolve upon us to lose no time in taking up the defensive, in the most energetic manner.—*Med. and Surg. Reporter.*

The Dental Engine. — Indispensable in the dental surgery of to-day, has also pre-eminent advantages in general surgery, especially in the treatment of necrosis and exostosis. Dr. Mathewson, of this city, was one of the first to publish his employment of this delicate, manageable and most powerful appliance; his case was one of exostosis in auditory meatus.

Of Funerals.—Recently in a daily paper, the following was observed in the death column; "Owing to the cause of death (scarlatina), the funeral services will be attended by the relatives only." This is a salutary and humane warning, and an example which, as it becomes popularly known and followed, will in all probability be the saving of many a life. The death referred to, sad to relate, was in a physician's family—a little daughter of three years; but others besides physicians will soon recognize the importance of the step as a means of checking the spread of contagious disease. The New

York Health Board has declared public funerals dangerous where the death was caused by scarlatina, diphtheria, measles or whooping-cough; and the family are required to limit the attendance to as few as possible, and those only who have had the disease of which the deceased had died. The Boston Board has issued a circular conveying recommendations of a similar nature. The conviction of the power to control contagion appears to be taking deep root. This, in itself, is a good sign, if it is true, as Lord Derby has said: "Men are very slow to learn the extent to which their destinies are in their own power; they are apt to be astonished if you point out to them that nine-tenths of the calamities that have afflicted the human race are directly and obviously the work of men's own hands." * * * A recent medical journal reports that a wake over the corpse of a woman dead from typhus resulted in the seizure by typhus of every one there present—more than twenty—of whom a third died.—*Proc. King's County Med. Society.*

Book Notices.—In consequence of illness, we have been compelled to lay over notices of new publications to our next issue. We are in receipt of *American Clinical Lectures*, by E. C. Seguin, M. D., vol. 11, 1876.

Transactions of the American Gynecological Society for the year 1876, published by H. O. Houghton, Riverside Press, Cambridge, Mass.

Heaton on Rupture, published by the same publishers, Riverside Press, Cambridge, Mass.

Prize Essay, *Excision of the Larger Joints*, by H. Culbertson, M. D., of Zanesville, Ohio.

Objectives of Wm. Wales.—We call the attention of our microscopic readers to the advertisement of these very superior lenses. Mr. Wales has for a long time held a first rank among the most eminent makers of objectives in the world. It will be noticed what the judges of the late Centennial Exhibition said as to his glasses.

We are informed that he is now making a cheap series of lenses. So soon as we have an opportunity to examine them we will report as to their qualities.

THE

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Original Contributions.

TRANSACTIONS OF THE PATHOLOGICAL SOCIETY OF PHILADELPHIA.

CASE OF CYSTIC ADENOMA OF THE MAMMARY GLAND.

By DR. C. B. NANCREDE.

M. B., æt. 40 years, widow, having born children, came to the Epispcopal Hospital, January 10th, 1876, complaining of a growth in her left breast, which caused her uneasiness. She stated that after one of her pregnancies this breast had gathered, and was permitted to evacuate itself. She some years back suffered from metorrhagia, and again from scanty menstruation. Between two and three years ago she noticed a tumor, as she said, in her right breast, which disappeared after friction with ointments, etc., so she tried the same plan with this present growth, but with no result. She was unaware of its existence until three weeks before consulting me, when she discovered it, the growth then being about as large as when I saw it. She complained of sharp, lancinating pains, extending from the tumor into the other breast, and it was tender to handle.

When first seen by me there was considerable œdema from the constant handling, rubbing, etc., which, with some ot the tenderness, disappeared after two weeks' abstinence from any local treatment or manipulation. The growth felt about as large as a hen's egg, was ovoid, hard, and freely movable beneath the skin and over the pectoral muscle. The axillary glands were free from any enlargement or tenderness, and there was no retraction of the

nipple. She passed from my hands into those of Dr. J. Ashhurst, jr., by whose kindness I am enabled to present this specimen. Dr. Ashhurst, on Thursday, January 10th, 1876, removed the tumor with the whole gland as a precautionary measure. The accompanying drawing, made from a section of the tumor, exhibits its structure.

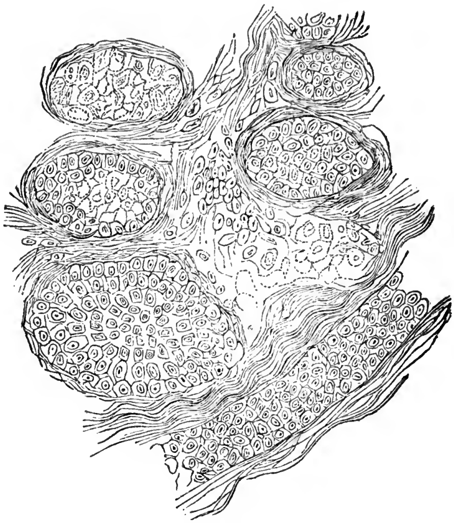

Fig. 1.

Cut from the tumor showing tubules in transverse and longitudinal section, filled with proliferated epithelium, to the exclusion of a Lumen.

This case seems to me of interest clinically, and still more pathologically. Clinically, because it presented nothing by which it could be distinguished from a solid growth, and also because it might so readily have been mistaken for a scirrhus-nodule not yet adherent to the surrounding parts. The chief diagnostic points against any such view were the history both of this and the previous growth in the other breast, the absence of the extreme stony hardness of scirrhus, and the previous menstrual troubles. Of course, the absence of retraction of the nipple, dimpling of the skin, and involvment of the axillary glands could be of little value, since if the growth really were of only three weeks' standing all these might have been absent, and yet scirrhus present. The probabilities are that it had existed for a much longer time, as

such growths are generally very chronic in their course, although occasionally very rapidly enlarging. Pathologically, this growth seems to give us the key for the explanation of the varied and strange appearances presented by the so-called "chronic mammary tumor" of Sir Astley Cooper, or cystic adenoma, as more ordinarily described.

Let me here briefly advert to the varieties of benign cystic growths having for their seat the mammary gland.

First, there will be frequently found numerous cysts either on the surface, beneath, or in the substance of the mammary gland, which, although presenting many varied appearances, are really of identical origin; they are due to disease of the ducts. In their simplest form they are usually found scattered over the posterior surface of the gland, and, although rarely amounting to anything like an important disease, their occurrence indicates a certain morbid condition. As they may be regarded as typical of this class of mammary cysts, their description will answer for all the other larger and more complicated ones. These cysts vary much in size, are generally small, however, and have for contents fluids of a mucous nature, varying in color from a light yellow to black or a dirty green. Under the microscope these present a granular basis, fat-globules, milk-globules, and colostrum corpuscles, with epithelium; they are constantly lined with a coherent epithelium formed of oval, slightly granular, nucleated cells. I would here refer to the admirable essay of Mr. Birkett on "Diseases of the Breast," from which I have drawn many of the facts offered for your consideration this evening.

These cyst-contents would seem to clearly prove their origin, since they contain all the results of the secretion from the true gland. Another proof which Mr. Birkett considers as conclusive, is the fact that we not uncommonly find in the breasts of middle-aged women the duct dilated and filled with this same greenish mucous fluid, which, in like manner, presents structures identical with those found in the cysts. The mode of formation of these cysts as well as of the larger ones can be explained in a few words. An obstruction occurs at some point of one of the lactiferous ducts. Secretion still going on behind the obstruction, the duct-walls soon dilate, causing detached enlargements or a varicose condition.

In time the portions of duct between the enlargements

contract, until finally all trace of it becomes obliterated, and smaller or larger cysts are found surrounded by condensed cellular tissue. At this latter stage the cyst-contents have generally become more solid; but, whatever the condition of cyst or contents, more or less distinct traces of the ducts may be obtained on section.

There is another disease that might be taken for these cysts, but it is rather *cystiform* than *cystic*, since in the latter we have a closed cavity lined by a continuous membrane, while in the former a communication with the ducts opening on the nipple can always be demonstrated. This affection seems to be due to a varicose condition of the ducts, caused by malformation of the nipple, or their obstruction by pressure. In addition to the substances found in the true cyst, there is seen a firm coherent mass, which may be removed entire, after maceration, presenting a complete cast of the dilated duct and its ramifications. This mass consists of fat-globules, epithelial scales, and some spindle-shaped bodies.

The mode of formation of this pseudo-tissue and the cyst-like bodies would seem to be as follows: First, an excess of secretion takes place in the duct, which cannot flow away spontaneously, owing to the malformed nipple or from pressure on the ducts. The fluid parts becoming absorbed, the more solid portions remain, leaving a more or less hard mass. From mechanical pressure this sets up irritation, followed by cell-proliferation, which sooner or later attains a certain degree of fibrillation. One of the most important facts relating to this cystiform affection is, that they are not uncommonly found in portions of gland-tissue removed with a nodule of scirrhus or medullary carcinoma, and that therefore we should be on our guard not to consider the growth innocent until we have carefully examined whether there may not be some small isolated portion of a malignant nature.

The last class of benign mammary cysts now remains to be considered. These are due, not to a diseased duct, but to a peculiar action of the fibro-cellular envelope of the gland-tissue, the consequence of morbid nutrition. Owing to this we have fluid effused into the cellular tissue, which sooner or later assumes a cystic character by its accumulation at one spot, and by the condensation of areolar tissue around forming a cyst-wall. The cells of the epithelium lining these cysts are hexagonal and nucleated.

They are characteristic of this form, and isolate it from all other mammary cysts. These cysts may remain without other than fluid contents, but, as a rule, from the side towards the gland a solid mass will be observed, which in time tends to fill up the whole of the cavity. When this point has been reached, the growth still continuing, the limiting wall gives way, new cysts are formed, until we may have a very large mass, which has been called by various authors "chronic mammary tumor," "sero-cystic sarcoma," etc., I think you will agree with me that my specimen falls with this latter division.

Now as to the microscopic appearances. According to Rindfleisch, "with the total emancipation from the physiological purpose of the glandular formation, the sphere of those tumors begins which I call adenomas." This is shown by several of their microscopic appearances. Apart from the stroma an adenoma consists of epithelial cells arranged concentrically, as if around a lumen. As a rule, this lumen exists only at spots, or, occluded by a mucous or colloid mass, does not communicate with the excretory ducts of the gland. It seems as if nature's effort was merely to produce the greatest possible amount of something resembling glandular tissue, but neglects the vascular supply, so that the larger the growth becomes, the less, relatively, is the supply of blood, the excessive growth thus causing its own death. The mode of growth of an adenoma is *central*, not *peripheral*, so that it displaces more than it infiltrates. The first microscopic change to be noted is a proliferation of the epithelial elements of the acinus. This differs from that taking place physiologically during lactation, in that the cells are piled up one above another, and that a regular fatty metamorphosis does not occur. The proliferation of the cells commences close to the connective-tissue limits, which crowd in among the bases of the older cells until finally the lumen is filled up, when a steadily increasing dilatation of the whole acinus takes place. The remainder of the gland is apt to become atrophic. After the complete filling of the acini by cell proliferation, the adjacent cell-nests coalesce more and more, fatty degeneration occurs at the centre of the large ones, and finally so-called atheroma-cysts are formed. This is all that concerns us microscopically.

As Rindfleisch, Billroth, and Von Bunn remark, all these

appearances should cause this growth to be classed among the epitheliomata, only differing (so far as our present knowledge goes) from cancroids by respecting to a greater extent the connective-tissue limits. We have the same return to the fœtal state of solid masses of cells which precedes the formation of the central lumen of glands. In the growth itself, even the limits between epithelium and connective tissue are not respected, since the neighboring acini coalesce by destruction of their connective-tissue capsules. It remains for further investigators to prove whether the growth, as a whole, may not break through its capsule and so infiltrate the surrounding parts.

Indeed, Billroth and Von Bunn have termed the adenoma mammæ "true epithelial glandular carcinoma;" and Rindfleisch seems inclined to agree with them. I would, in conclusion, say that Rindfleisch considers a true adenoma mammæ very rare; and that Billroth seems to think that almost invariably they are really adeno-sarcomas. If by an adeno-sarcoma he means an adeno-fibroma (for Rindfleisch considers the fibromas as really fibrous sarcomas) I can understand it. Otherwise there is nothing in the present specimen to confirm this view. The contents of the cyst resemble thin curdled milk, but under the microscope presented numbers of more or less fatty, degenerated, oval, nucleated cells, few oil-globules, and no milk-globules.

Dr. John Ashhurst, jr., spoke of the comparative rarity of this form of mammary tumor, and referred to a specimen which had been exhibited to the Society a number of years ago, but no account of which was to be found in the published proceedings. The specimen in question exhibited an earlier stage of the pathological process concerned in the formation of these tumors, being an example of the "sero cystic sarcoma" of Sir Benjamin Brodie, a tumor which had been better classified by Sir James Paget as a "glandular proliferous cyst." It was removed from a middle-aged woman who had been for a short time a patient in the Episcopal Hospital, where Dr. A. had had the opportunity of studying her case, but who had at that time declined an operation, and had subsequently entered the Pennsylvania Hospiral, where her breast was removed by Dr. William Hunt, the specimen being exhibited to the Pathological Society by one of the resident physicians, whose name Dr. A. could not now recall. In that case the

cysts were quite large, some being so near the surface of the body as to give the part a characteristically semi-translucent, bluish-black appearance, and there was a free discharge of cystic fluid from the nipple. In the specimen shown to-night, the intra-cystic growths were so far advanced as to render the tumors an example of the "chronic mammary tumor" of Sir Astley Cooper, or, as Mr. Birkett (to whom was in a great deree due our knowledge of the pathological relationship existing between these varieties of tumor) had more accurately proposed to call it, an adenocele or adenoma.

These growths, Dr. A. added, were entirely innocent, though in both their earlier and their later stages they had often been mistaken for malignant tumors; and, indeed, when so far advanced that the intra-cystic growths, having burst the cyst-walls and caused ulceration of the skin, protruded as fungous masses, it might be impossible to make the diagnosis without the aid of the microscope. No doubt many cases in which it had been claimed that a return of cancer after operation had been prevented by internal treatment, were really cases not of cancer but of ulcerated adenoma.

Dr. Pepper said he recalled the case very distinctly, and thought perhaps he could supply the history Dr. Ashhurst desired from notes he had preserved, he having been much interested in the case at the time. He recalled the slightly sanguineous discharge upon which the diagnosis was made, as well as the remarks which Dr. Ashhurst made at the time of its exhibition.

GLIOMA IN LEFT LOBE OF CEREBELLUM: HEADACHE, STAGGERING GAIT, EXCESSIVE VOMITING.

By Dr. William Pepper.

Miss W., æt. 20, enjoyed general good health until the latter part of 1874. She had, for about a year before that, been noticed by her friends to hold her head towards the right side. In March, 1875, vomiting began, and continued, with occasional intermission, until her death, on October 12th. The vomiting was peculiar; it was not influenced by the character of the food; it frequently occurred early in the morning, when she first moved in bed; frequently recurred as often as eight, twelve, or even more times in the course of the twenty-four hours. There was no

pain in the stomach, though later there was circumscribed tenderness in the epigastrium. The matters vomited consisted of food, more or less altered, or of acid fluid. During menstruation, in September, repeated and free vomiting of blood occurred, while at the same time the menstrual discharge was checked. On other occasions a few drops of blood were observed in the matters vomited, but these probably came from the throat or from her gums, which were disposed to bleed. There was no constipation.

In April she began to complain of headache, recurring in severe paroxysms several times a day. She described it as being deep-seated, at the vertex or temples, and extending down over the left eye. It was at one time absent entirely for seven weeks. She was also noticed to stagger slightly in her gait, especially on first rising after being seated for some time. On one or two occasions she complained of difficulty in walking, saying that she tired easily, and could only walk slowly, and not as she had formerly been able to do. Her eyes were naturally prominent; after the early spring of 1875 her eyes were occasionly sensitive to light, and soon grew dim on using them. On several occasions transient diplopia was observed; but her vision remained quite good until the close, so that she could read small type for a little while, or see small objects even at some distance. When lying in bed on her right side, the eyes turned to the right. No ophthalmoscopic examination was made.

She was confined to bed for the greater part of the time, and lay continually on the right side. Emaciation progressed with moderate rapidity. She became very prostrate, and died October 12th. Her mind remained perfectly clear, and memory good until the close.

Post-mortem examination, thirty-five hours after death.

Head.—No change in bones. Dura mater healthy. Hemispheres seemed healthy. No effusion at base; indeed, there was remarkably little effusion, as increased tension caused its withdrawal. On cutting tentorium and turning cerebellum out from its fossæ (after severing spinal cord), an oval tumor, one and a half by one inch, rolled out from the side of the left lobe of cerebellum. It was pinkish-gray, soft and fleshy in appearance. The dura mater was smooth and healthy in appearance where it lay; it had no adhesions. It lay in a cup-shaped cavity hollowed out of

the substance of the cerebellum, and was merely attached and covered by most delicate cellular tissue.

There were no evidences of direct pressure on pneumogastrics, though of course there must have been greatly-increased tension and much irritation.

Rest of cerebellum apparently healthy.

Thorax.—Heart healthy; no pleural effusion. Right lung adherent quite closely. Hypostatic congestion postero-inferiorly. A small cretaceous nodule in right upper lobe, one inch deep in tissue.

Abdomen.—Fair amount of fat in abdominal walls. No peritonitis.

Stomach contained several ounces of slate-colored fluid. No ulcer. Extreme congestion, especially towards cardiac orifice, where it was very fine; injection of minutest capillaries. Some mammillation of the mucous membrane towards pyloric orifice. In a few places mucous membrane looked as though there had been hemorrhagic erosion which had healed. No thickening of its walls; no obstruction of its outlets.

Intestines.—Colon much distended with gas and fæces. Illeum extremely contracted. No enlargement of abdominal glands. The other abdominal viscera healthy. Uterus healthy. Ovaries contain recent corpus luteum.

October 14, 1875.

The tumor was referred to the *Committee on Morbid Growths*, which reported, November 11th, 1865.

Report of the Committee on Morbid Growths:

"Your committee have examined Dr. Pepper's tumor of the cerebellum, and pronounce it to be a *glioma.*

"Microscopically, the growth is composed of numberless cells, whose physiological type is found in the neurolgia. In general they are round or oval, and send out delicate fibrillæ in every direction. These processes or fibrillæ are of strikingly dark contour, often slightly wavy and sharply bent. The cells are about thrice the size of colorless blood-corpuscles; they are nearly throughout multinuclear; usually they contain two large, round, or slightly oval nuclei in close apposition, each of these again enclosing two or more nucleoli. The body of the cell is homogeneous, faintly shining, yellowish.

"The peculiarity of these cells lies in the fact that they

Fig. 2.

are not limited by any membrane, but, on the contrary, send out from their entire periphery fine fibrillæ. These small round cells, with thin long processes radiating out in every direction, give them, when isolated by careful teasing, a spider-like appearance, the 'Spinnenzellen' of the Germans.

"While still in their position, the extension of these processes from the protoplasm of the cells is almost impossible of recognition, and very apt to be mistaken for intercellular substance, but in reality there is no intermediate matter between the cells. Not unfrequently these long, fine fibrillæ are attached to the body of the gliomatous cell by homogeneous pedicles, as represented in the accompanying drawing."

The Physiological Action of Opium.

Lectures delivered at the Hopital de la Charite, by Prof. G. SEE.

Translated from "La Tribune Medicale," by W. A. ROTHACKER, M. D.

We shall now consider the action of opium and morphine on the brain and spinal cord.

In what way does this substance exercise its action? The question is easily answered if we hold, in the words of Moliere, "Opium produces sleep because it has a dormitive virtue;" or, reversing the proposition, because opium has narcotic properties it brings on sleep. We

must search deeper into this important question. And first, let us say, there are at present two opinions on the physiology of sleep.

It was formerly believed that the brain was congested during sleep. This view was abandoned for a time, but has quite recently been revived. Hammond has demonstrated that sleep is accompanied by cerebral anæmia. It is of interest to us now to ascertain whether opium narcosis is produced by cerebral anæmia or congestion.

It is the general opinion that anæmia is present, opium producing contraction of the cerebral vessels.

This has been proven by a German physiologist to be the case in the dog and the horse. The condition is easily observed by trephining the vault of the skull in these animals, and inserting, in place of the bone removed, a piece of glass.

There is, however, another physiologist, M. Charvet, who has witnessed only a normal circulation in the brain. The truth lies in the midst of these contradictions. Opium and morphia produce different effects in man and animals, according to the dose administered.

A large dose of opium produces narcosis at once; given in a small dose, the narcosis is preceded by an excitation.

These two orders of phenomena are the more marked in the animal scale according as the nervous system is more complex. In man opium and morphine, in large doses, always produce narcosis; in the lower animals (not passing from the warm-blooded animals), in the rabbit especially, we observe a slowing of the respiration.

Is not this last phenomenon, *i. e.*, the reduction in the number of respirations, an effect of sleep? There is, physiologically, a decrease in the number of respirations during sleep.

It may be given, as a general rule, that of all medicaments administered to calm the respiration, none has the value of opium, especially of morphia injected hypodermically.

We have before noted the excellent effects in this respect which can be brought about by the use of chloral and bromide of potassium.

But injections of morphia act better than these in an attack of asthma; for one is not obliged to give a large quantity of morphia, while very large doses of bromide of potassium and chloral are necessary.

I have only spoken incidentally of morphia. I did this designedly, for morphia presents very notable differences in its action.

Changes in the circulation are less constant and less marked; in a vast number of cases one does not observe any change, neither a notable exaggeration of the pulse, nor a modification of the temperature, nor yet an acceleration of the respiration.

There are indeed observers who have noted a reduction in the pulse when the dose was large enough, but remember that morphia has a very slight action on the pulse, that this action is very irregular, and wanting in the majority of cases.

It has been said that in nervous persons a great irregularity of the pulse has been noted. This irregularity is observed when very large doses of morphia are administered, but the effect is not specially in nervous persons; in fact, these persons have a great tolerance for morphia, and will bear very considerable doses.

Morphia has astonishing effects on the respiration; it quiets it at once, and always. In this belief I am upheld by a German observer, whose name I shall not tell you, because I am able neither to read it nor to pronounce it.

What explanation of this fact can we offer? If toxic doses of morphia are administered, there is at first acceleration, then suddenly retardation, and at last quickening of the heart's action. These phenomena are produced through the peripheral portion of the pneumogastric nerve. If we divide the vagi in an animal before the administration of morphia, we shall observe an acceleration of the heart's action; if the nerves be divided after morphinism has been produced, the same effect follows, the nerves continuing to produce their action. The acceleration of the heart's action is therefore produced by a kind of paralysis of the pneumogastric.

But how shall we explain the retardation in the heart's action? It may easily be explained by the excitation which the morphia produces on the vagi.

The action of the therapeutic dose is not the same. We observe at first a slight excitation, then a falling off. The explanation of the diminution is the same as given above. It is very difficult to know the cause of the excitation, which usually lasts several minutes at least.

All the effects which we have thus far mentioned we

have referred to action on the periphery of the vagus nerve. The effects on the central portion of this nerve are equally interesting. Thus if we inject morphia into the carotid of a dog, we shall observe a marvelous result, viz., the pulse will fall in one or two minutes to 40 or 50.

This fact is explained by an immediate excitation of the centric portion of the vagus.

The diminution then may be caused by an action either upon the central or peripheral portion of the vagus.

If all the nerves to the heart are divided, there will be observed, under the influence of morphia, first an excitation, then a diminution in the number of pulsations. The ganglia of the heart remain intact, and it is probable that by a direct action upon these the acceleration is brought about.

We may then say that—

1. Augmentation of the number of pulsations of the heart is probably produced by an excitation of the cardiac ganglia.

2. Diminution in the number of pulsations of the heart depends upon an excitation of the pneumogastric.

There remains another hypothesis, which may be true. You know that in morphia is found apomorphine, just as as in opium there are codeine, narceine, etc. Now one of the effects of apomorphine is acceleration of the pulse. In the administration of morphia the acceleration may be due to the presence of apomorphine.

I shall close this question by observing that there is always an increase of blood pressure. When the pressure diminishes the animal is near its death.

We have said that the effect upon the respiration is manifested by a diminution in the number of respiratory actions following at once the administration of a therapeutic dose, this effect being very much more marked when the dose is toxic.

We shall now speak of the disagreeable effects which may follow the administration of morphia, and of its action on the alimentary canal and nutrition.

Opium in a certain dose produces marked dryness of the mouth and throat. How does it produce this effect? Is there a diminution in the secretion from the mucous membranes? Yes; and this diminution exists throughout, for do we not observe it also in the intestines?

But certain authors have spoken of an increase in the

salivary secretion. Without wishing to contradict these statements, it appears difficult to understand that there is an increase of the saliva existing at the same time with the marked dryness. There is also exaggerated thirst, which may be relieved by taking into the mouth a small piece of ice.

One of the constant effects of opium is a decrease in the appetite. It is one of the greatest inconveniences following the use of opiates. This condition has its point of departure in the dryness of the mouth. In fact, the sensation of hunger has its seat not only in the mucous membrane of the stomach, but also in that of the mouth. A perversion of the taste will bring about a diminution in the appetite, independent of any action of the stomach. Are we not, for example, often prevented from eating by a simple cold in the head, from the fact that food has a bad taste to us, owing to the changes in the taste and smell produced by the disease?

It has been held that digestion is interrupted; that food remains longer in the stomach without change, the proof of which lies in the observation of food vomited a considerable time after its ingestion. This statement is contrary to the experiments of M. Leven, who has presented a communication to the Academy on the physiology of the stomach. This observer maintains that the stomach is a contractile organ, which drives the food into the intestine very soon after its reception, and that it takes no part in digestion. If this be true, opium does not interfere with stomach digestion; it only diminishes the contraction of this organ.

Opium, in any case, does not decrease the secretion of gastric juice; therefore, it can be taken at any time before or after eating, without regarding the theoretical views which insist that it should be taken three hours before or three hours after a meal. I shall say, moreover, that digestion is improved in certain cases by the use of opium, for this agent produces a diminution in the secretion of mucous in the stomach, and the presence of this secretion often forms a notable impediment to digestion, as in catarrh of the stomach, where the digestive process is accomplished with much difficulty.

We shall conclude the study of the physiological action of opium by speaking of its effects on the circulation and respiration. We shall also mention its action on certain other functions concerning which there is less known.

ACTION ON THE CIRCULATION, CARDIAC AND PERIPHERAL.

When small doses of opium are given, the pulse rate is increased 10 at the end of eight or ten minutes. This fact corresponds to what we already know of the period of excitement. If we augment the dose, the effects are the same. This phenomenon is constant, and is found so long as the action of the opium is not cumulative, or so long as the dose is not too large.

If five or six centigrammes of opium be administered, there is an excitation of the pulse; if, on the contrary, ten be given, the pulse falls somewhat below the normal.

But that, which it is important to note is the fact, that the blood wave is elevated; the pulse becomes full and resisting, and does not return to its normal state until two hours after the administration of the opium. M. Bordier has studied, by means of the sphygmograph, the modifications in the pulse, and he has noted a diminution of tension. I have never observed this diminution, and I am inclined to believe that M. Bordier is in error. Remember that there is a resistance, and an increased tension of the pulse. The dicrotism is the same as in the normal condition.

During this time the temperature rises several tenths of a degree. It is during the first stage of action, the stage of excitement, that we have observed this elevation.

After a variable period of time the pulse becomes irregular, at the same time diminishing in frequency. Notwithstanding the reduction in the pulse rate, the tension is still increased. I cannot therefore see at what period M. Bordier noticed a diminished tension, since it exists neither in the first nor second stage of action.

If the dose is toxic, the first stage may be entirely absent, and the latter phenomena which I have just described may be the only ones observed.

The temperature, whose rise is gradual, falls after three hours, and the respiration becomes quiet.

We can sum up the phenomena relating to the circulation thus:

First Stage. Excitation of the pulse, increased tension.

Second Stage. Reduction and irregularity in the pulse, tension unchanged.

The temperature, rising gradually at first, falls. The respirations, accelerated at first, decrease in number.

ACTION ON THE NERVOUS SYSTEM.

Opium always produces convulsions, but it is very difficult to bring on narcosis. This, as M. Hecker says, depends upon the animal.

We cannot open the cranium in man in order to observe the modifications in the cerebral circulation, but we are prepared to believe that M. Hecker is correct, because the brain of man is the most complex.

But take man himself, and we are able to remark in him also certain differences.

We admit that there are certain inferior races, as the negroes and malays. What is the effect of opium on these individuals? It is the same as that which we notice in the lower animals. In place of narcosis we have convulsions.

In these races we observe delirium and mania.

We admit, therefore, that opium narcosis is produced by cerebral anæmia.

Those who, with Buckeim, deny that opium or morphia produce their effects through the circulation, seek another explanation. They say that there is a special chemical affinity in the alkaloids for the albuminous substance of the brain. I trust you will not take up with this theory. This action would take place in all the albuminous constituents of the body, and it would be very curious indeed if morphia should choose especially the albumen of the cerebral substance. It is a fantastical notion. If there is narcosis, it is produced by means of the circulatory system.

Let us now pass to the consideration of the action of morphia on the cord.

How does opium affect the reflex action of the cord?

Opium has long been employed and is still employed where there is an exaggerated condition of the reflex power of the cord. Opium, therefore, diminishes the reflex excitability of the cord, but this observation depends upon the time at which the action of the opium is watched.

Under the influence of morphia we observe tonic convulsions similar to those produced by strychnia, and if in place of morphia we use thebaine, we shall have convulsions so much resembling those of strychnia poisoning, that it becomes very difficult to distinguish between them. The convulsions cease in both cases when artificial respiration is applied. It is important, however, to re-

member that this excessive exitability does not last so long under the use of morphia as it does with strychnia. The super-excitability which results from morphia is soon succeeded by a diminution in the reflex power of the cord, and this fact explains its employment in therapeutics as indicated above. It is also important to note that the reflex excitability falls much below the normal.

Should we seek to diminish the reflex action of the cord by first increasing it?

We have now in our hands several other remedies—among others chloral—which act with greater efficacy, and which do not have an initial stage of excitation.

Opium, therefore, in its action on the cord, has first a stage of excitation, after which the reflex excitability is reduced considerably below the normal.

What are the effects of morphia on the sensory and motor nerves?

It has been said that the sensibility of the peripheral nerves is injured, and that the internal administration of morphia causes a diminution of sensibility, but the somnolence and apathy following its use have not been taken sufficiently into account. Everything tends to prove that morphia acts especially upon the nervous centers, and that it has no special effect on the sensibility of the peripheral nerves.

A German physiologist has exaggerated this supposed action of morphia on the peripheral nerves. He maintains that an injection of morphia made near a large nervous trunk acts not only on the nerves in the immediate vicinity, but its action extends even to the periphery of these nerves; that the power of conduction in the nerve is diminished. This hypothesis will not bear a close scrutiny. We may say the sensibility is more sluggishly manifested, but not that it is diminished.

It is not true that injections are more efficacious when made at the *loco dolenti* because of an effect produced on the peripheral vessels. If there appears at times a local action, it results from the revulsion produced by the puncture, and this fact is so true, that the more bungling you are in making the injection, that is to say, the more pain you produce, the greater is the local relief.

What action has morphia on the motor nerves? Albers thinks that opium produces contraction of the muscles. But I say to you that the peripheral excitability does not suffer any change.

Let us now speak of the vaso-motor system. Claude Bernard has said that the activity of the ganglia which preside over the function of the sub-maxillary glands is interfered with, so that excitation does not produce a reflex action in them. Nevertheless, we can say that there is a super-excitation of the dilator nerves, for a hypodermic injection causes the face to become red, vascular, the eyes are injected, etc. There is also increase of perspiration, and at the same time an abundant salivation. In man this latter would be reversed.

One of the most remarkable effects of morphia is its action on the pupil. In man, ten to fifteen minutes after the administration of morphia, we find a condition of myosis, *i. e.*, the pupil is contracted. Before narcotism, troubles of accommodation are also observed. There is a difference between the myosis produced by morphia and that produced by other substances; thus with eserine the myosis is instantaneous.

Harley thinks that the contraction of the pupil is a certain sign of poisoning.

How does morphia, acting on the innervation of the iris, produce this phenomenon? There are always two questions which present themselves when there is a condition of myosis. Is it produced by an exaggerated innervation of the third pair of cranial nerves? Or, on the contrary, is it produced by a paralysis of the radiating fibres of the iris, which you know are under the control of the sympathetic?

I give you the pleasing explanation of Harley. He admits that there is a stage of morphinism, the stage of excitement, which is succeeded by a stage of depression. The depression does not take place at once, but it is a question of distance; thus, at a given moment, one part may be in a stage of excitation while another is depressed. In man, the path by which the motor nerve reaches the iris is shorter than that of the fibres from the sympathetic, therefore the shorter nerve has the predominant action.

Another explanation may be given. There exists a central ganglion of the iris. May it not be that only this central ganglion is excited, thus producing the myosis? Contraction of the pupil is not constant in all animals; thus, in the horse, dilatation of the pupil has been noted, and in the dog there is at first contraction, and afterwards dilatation.

Ulceration of the Cornea and Iritis.

By W. R. Amick, M. D., Cincinnati, Ohio,

Mrs. F., æt. 65. Previous health good. Never had any ophthalmic trouble. Had an attack of remittent fever, which began about the first of March. Two weeks later her left eye began to get sore; six days later her right eye became inflamed, and three days after this I saw the patient for the first time. Her condition at this time was poor. Very much emaciated, weak, anemic, and debilitated; skin hot and dry; pulse 116; temperature 103° F.; tongue heavily coated, fissured, and very dry; no appetite; bowels constipated. The conjunctiva of the right eye was considerably congested, the inflammation extending to the cornea. The symptoms in the left eye were more marked. There was pain in and around the eye-ball, extending all over the corresponding side of the head. Light was very painful, and lachrymation very free; the conjunctiva was highly injected; the cornea was inflamed and ulcerated at its inner margin; the iris was contracted, swollen, and of a dirty reddish brown color. Sight in the right eye was not affected by the inflammation; in the left it was nearly nil; could not count fingers at any distance.

The treatment consisted, first, in controlling the fever and husbanding the strength. For the former she took spts. æth. nit. tr. acon. ℞, and chin. sulph. For the latter ordered spts. vini gal., egg-nog, beef essence, etc.; later gave her tr. ferri chlor., and tr. cinch. comp. For the right eye ordered zinc sulph., gr. iv to the ounce, and use this solution every four hours. For the left eye used atropine and ice water. The light was excluded from the room, as the smallest amount produced violent pain in and around the eye. The ciliary neuralgia was so severe, that she had slept very little for three or four nights. For this we gave morph. sulph. in one-fourth grain doses, to be taken every hour until the pain was relieved. During the first twenty-four hours there was little if any dilaatation of the pupil on account of complete posterior synechia, but at the end of this time the adhesions began to give way at the superior margin of the pupil. The breaking up of the attachments was slow, in fact, they never gave way completely. Commencing at the upper portion of the pupil, they gradually gave way, until about two

thirds of the pupillary margin of the iris was free, but the remaining lower third maintained its attachment. There was some dilatation in this direction, the synechia seeming to recede or slide on the anterior capsule. The ulcer on the cornea was crescentic. It continued to extend both upwards and downwards, until it encircled about three-fifths of the cornea.

While extending it was superficial, but when it ceased to extend, then it penetrated deeper into the corneal substance, and an hypopyon was formed.

At this time the eye was very sensitive, and light could not be borne at all. Atropine, ice applications, and a compress bandage had been used, but on account of the increased sensibility of the eye-ball, the latter could not be used. At first the ice applications were soothing and gave relief, but in a short time they appeared to aggravate rather than relieve the pain. Warm applications were resorted to and exerted a beneficial influence for awhile, but they soon increased the ciliary neuralgia to such an extent that they had to be dispensed with. Applications of water at a temperature of about 60° F. appeared to be the most soothing. The progress of the ulcer was not rapid, but continued to extend until about the tenth day after treatment had been instituted, when a little bead of the membrane of Descemet began to show itself. This of course was at the bottom of the ulcer. Paracentesis was performed at this point. Immediately afterward she had severe pain shooting through the eye-ball, and up into the head. A compress bandage was then applied and morphia given. A few hours later the pain passed away, but not until there was considerable accumulation of aqueous humor in the chamber. After the aqueous humor had reaccumulated, the bulging of the membrane of Descemet began again, when paracentesis was repeated. The tapping of the anterior chamber was repeated every time that this tendency to keratocele or hernia of the cornea presented itself.

This disposition did not pass away until after the operation had been performed twenty four times. After every operation atropine was used, and the compress bandage applied. The hypopyon still existed in the anterior chamber, but not to so great an extent. She complained of a dryness and burning sensation in her throat, which was due to the atropine.

For three weeks she ate almost nothing, having an aversion for all kinds of food. At the end of this time she began to be troubled with phosphenes. We gave her ext. nucis vom. and hydrarg. chlor. corros. and the phosphenes disappeared. After this she began to improve. The fever that had continued intermittently all this time passed away, and there was a gradual improvement in the eye.

The dryness and burning sensation in the fauces continued as long as the atropine was used, although we tried to prevent the solution passing through the canaliculi. As soon as we ceased to use it this disagreeable sensation passed away. An astringent solution was used sometime afterward on account of some conjunctival inflammation. The inflammation in the right eye was soon controled.

She is now in the enjoyment of as good health as she has had for several years. The sight in the left eye is as good as it is in the right. Of course we would naturally expect a person at her age to be presbyopic and have to use spectacles. With the aid of her glasses she has no trouble to read newspaper print.

Selections.

Rules Followed by Mr. Spencer Wells in the Operation of Ovariotomy.

"1. He permits no inoculation with septicæmia by the visitors who are present, no matter if they be intimate friends. They cannot touch the patient's person, much less her mucous membrane by a vaginal examination; and by their written certificate they are put upon their word of honor that they have not within a week been even within a suspicious atmosphere.

"2. Similarly, precautions are taken against the chance induction of simple peritonitis. By permitting no examination, whether external or internal, by visitors, a deal of unnecessary stirring up of the patient's pelvic and abdominal viscera is avoided. At such times it is but a sorry compliment to a professional friend to ask him to verify the diagnosis, while abstinence from such manipulation may to the patient make the difference between life and death.

"3. The patient, having been anæsthetised previous to their entrance, sees no stranger. Visitors would instinctively retire at the close of an operation, but they are too often ushered into the room prematurely, thus causing much unnecessary nervous excitement, which most certainly cannot increase the chance of recovery.

"4. Celerity in this operation, provided time enough be allowed for the completion of every requisite stage, and the closure of all points of hemorrhage, means not *eclat* for the operator so much as safety for the patient, by preventing undue exposure of her viscera and peritoneum to atmospheric irritation and chill. To insure this, skilled assistants are required, who are not ouly generally, but specially, versed in every possible detail of the operation.

"5. Every minute precaution, if wise, counts towards the result; so that to confine the patient's extremities beforehand leaves the assistants free for other duties, and preserves the operator from stoppage in his work; saves his mind from annoyance, and his thoughts from being turned from the point of the moment. In the same way, perfect neatness and cleanliness, everything being in its place, and that place a matter not of chance but of prevision, helps the result. Napkins soaked with ascitic and ovarian fluid, sticky sponges, puddles of coagula, and instruments coated with half-dried blood, may seem the necessary adjuncts of such an operation, but their absence goes far to keep the operator's hand facile, his mind cheerful, his speed great, and to cause his whole work to be better done.

"6. Other things being equal, the shorter the incision the better, for manifold reasons. To disintegrate the morbid mass from within its substance by the hand passed into the cavity of a cyst is far more judicious than to pull and to twist and otherwise forcibly undertake to deliver it, whether by hand, by forceps, or by both combined. The adjacent viscera are less disturbed in position and less liable to get bruised, the peritoneum receives infinitely greater protection, and there is less traction upon the pelvic ligaments.

"To the other steps of the operation I need not refer, covering as they do ground that is now much more common to surgeons. I used myself to attach great importance to passing the sutures through the peritoneum, as Mr. Wells did in the case now reported, but I have had

recoveries when, to decide this question, no suture whatever was used; either the external lips of the wound were simply brought together by adhesive straps, or its internal edges by deep outside pressure of a similar character. And so with regard to the treatment of the pedicle. In this instance it was brought outside, and a styptic antiseptant applied. Recoveries have so constantly followed not merely this method, especially known as Mr. Well's, but deep tying, whether with silk, catgut, or wire, deep acupressure, the actual cautery, and even other procedures, the comparative merits of which have not been decided, and of which one seems best on one occasion, and another on another, that I do not now discuss them. My aim has been to point out certain general principles, hardly as yet appreciated, which must underlie all constant success; and I am quite sure that in Boston, where the performance of this operation of ovariotomy, perhaps *the* great triumph of modern surgery, was, not many years ago, in Mr. Wells' own presence, pronounced 'a mere matter of taste,' my remarks will be appreciated and their justness coincided in."—*Boston Medical and Surgical Journal.*

The following exhibit of ovariotomy at the Samaritan Hospital, London, is both satisfactory and encouraging.

"The year 1876 has been the most successful on record at the Free Samaritan Hospital—the operation of ovariotomy having been performed fifty-five times with only five deaths. Forty of these were performed by Mr. Spencer Wells, with four deaths; and eight by Mr. Knowsley Thornton, without a death. The fifty-five cases include many in which both ovaries were found diseased and removed; and many of the operations were most formidable from the extent and nature of the adhesions. No case in which the diagnosis of ovarian tumor was made was refused the operation, however bad the prognosis, provided the patient still wished to have the last chance when the extra danger of her case had been fully explained to her. We believe these are the best results yet published, either in hospital or private practice."

FISSURE OF THE ANUS IN INFANTS.—Dr. Mabboux reports the case of a child of two months old suffering with an anul fissure. Attention to the bowels and a salve of extract of rhatany effected a cure in six days.—*L'Union.*

Influence of Civilization on Duration of Life.

It is beyond question that civilized man lives longer than the savage. Our days, on the average, are many more than those of our ancestors of the stone age or the lake period. Some degree of civilization is therefore favorable to longevity. But when we ask whether the extension of life continues as enlightment grows, the question becomes complicated. A generation ago it was asserted with confidence that the specific duration of human life has for some ages been increasing perceptibly, and so rapidly that tables of mortality made from the experience of one generation are inapplicable to the next. This doctrine will be found throughout much of the most worthless literature in the world, the books on longevity, stated as if it were an obvious law of nature; but the only pretense of proof is that the famous Northampton table of mortality, and others constructed by similar methods, have been found to show a much shorter expectation of life than the experience of our own day. The science of statistics, however, has long left such notions behind, and has shown that the inaccuracy lies in the methods of constructing earlier tables. They do not properly represent the law of mortality at the period and in the community for which they were made; and it is only in very recent times that statistics have been collected with care enough, and on a basis wide enough, to establish that law. Nor are they now so collected, except in a few European cities, as to be of value for this purpose. The American people ought to understand that the cumbrous mortality statistics published by the United States Census Bureau are a laughing-stock for scientific investigators; and that even the great improvements introduced by its recent administration, have but served to expose the imperfection of the system. The mortality tables it has constructed are not so much inductions as conjecture; and the only trustworthy evidence in existence, showing the actual influence of our own climate, institutions and society in modifying human vitality, is that which has been gathered by business corporations, the Life Insurance Companies.

The sanguine doctrine of the rapid increase of life being exploded, it has become the fashion with a skep-

tical school of statistical writers to agree that no improvement has taken place; that the inadequate information we have points the other way; and that the luxury, ease, freedom from exertion, vices, and, above all, the hereditary accumulation of physical ills in civilized man, are probably shortening the tenure of life, perhaps even threatening the ultimate extinction of the more cultivated races. Many of you remember an unsavory discussion which agitated the intellect of Boston two or three years ago, echoes of which are still sometimes heard from the lecture-desk or the press, on the rapid tendency of Massachusetts to relapse into barbarism, from the decline in numbers of the native-born and intelligent people before the multiplying vitality of the ignorant classes. This kind of reasoning sometimes leads to amusing results. Thus Mr. Ray Lankester* has published a work on "Comparative Longevity," in which he makes the startling remark: "Were the evolution not always in advance of the provoking cause, we might anticipate the extinction of humanity, by the excessive competition and the excessive difficulties of existence which must always accompany increased population." Dr. Hough, of Philadelphia, in one of the most elaborate discussions yet presented to this Association, insists that there is a progressive decline in the vitality and longevity of the American people. "If," he says, "all the inhabitants of the globe were living in cities of the magnitude of London, and subjected to the same influences connected with the movement of population, the whole human race would become extinct in a century or two." It is hard to believe that the human race will ever die out, as long as the earth is crowded with men; or even as long as cities of the size of London remain. Nor, because enthusiasts have believed in an exaggerated and absurd extension of human life, and have supported the belief by mistaken facts, need we infer that the life of man is really growing shorter?

Not troubling you with the detailed facts, which seem to me to prove the contrary, I shall simply cite the highest authorities on the subject. Professor Owen, the great anatomist, has examined the subject as respects Great Britan, and is satisfied that the average life there is higher

* The inquirer who recently brought to grief, in London, our pet New York humbug, Dr. Slade.

now than in the last century. Sir Thomas Duffers Hardy has searched the records of the English courts for four hundred years, from the thirteenth century to the sixteenth, and among their innumerable notices of age, finds no instance of a man who had survived his eightieth year, and proofs enough that the age of seventy was rarely reached, and was regarded as extreme. Mr. Finlaison, the statistician, has studied the results of the Tontine Associations in England, from the seventeenth century down, and has shown that the expectation of life among the classes who invest in such funds has gradually increased full twenty-five per cent. during that period. Kolb, the careful and sagacious German writer on comparative statistics, sums up the case thus: "The meagre facts known indicate that the maximum age of man has remained nearly the same for centuries and even thousands of years; but that the number of persons who reach extreme age, and especially the number who survive infancy, has very materially increased." I have examined, I think, substantially all the evidence in existence upon the subject, and find these moderate judgments to be sustained by it.

Now this improvement is just what we should expect. It depends on no mysterious law of development, no innate tendency to an increase of vitality. It is the necessary result of agencies so obvious and so powerful in our civilization, that we need statistics not so much to prove their existence as to measure their effects. Let me enumerate them:

1st. The first is the improved care taken of infants. In savage life the babe is scarcely protected except by the mother's instinct. If this is interrupted by accident or disease, it perishes at once. It is liable at all times to fatal exposure. Step by step improvement is made as men become civilized. In Soranus, a famous medical writer of the second century, we find an elaborate discussion of the care of infants. The Thracians and Macedonians, he says, always bound the new-born child firmly, hand and foot, to a hard flat board. The Thessalians hollowed out the board to the shape of the body, and put in a stuffing of hay. These nations, like some North American Indians of our time, thought it necessary to hold the child motionless during its early life. Soranus himself advises that it be wrapped closely and firmly in woolen bandages, and that careful manipulations be practiced, to

give shape to its head and spine. The Germans and Scythians, he tells us, and many of the Greeks, used to dip the new-born in cold water, to test its vital strength, and try whether it was fit to be reared. Soranus, who represents the highest skill of his period, warns parents against giving the babe its natural food, the mother's first milk. This must be thrown away, and goat's milk and honey substituted. Thus we might trace step by step the slow progress of medical science, and the slower progress of custom towards the very moderate degree of excellence in both which now prevails, and remember that every step in each of them represents a gain of countless lives.

Let one proved fact illustrate the gain already secured. In London, 175 years ago, when the population was less than 675,000, the annual deaths of children under five years were 9,500. In 1810, when the population had increased to 1,050,000, this class of deaths had been reduced to 5,500 yearly—a saving of 62 per cent. on the average. Similar facts might be multiplied from statistical records, wherever health has been intelligently studied and sought. Of all the achievements of sanitary science, the greatest has been the rescue of these innocents from wholesale slaughter; yet this is still the most awful and the most hopeful field for its work. In every land human motherhood is still a Rachel weeping for her children; the children are dying from causes which might be prevented. There is room here for boundless preaching, but where lies the responsibility?

We find, then, that an infant's chance of surviving to maturity is steadily increased as civilization advances.

2d. Substantial improvement has been made from age to age in the care of the sick, infirm and aged. Among savages, every serious illness ends in death. The mutual help and care by which lives which cannot support themselves are supported by others is the product of society, and grows effective as social ties are strengthened. Even in this century, and among people which have something like a social organization, the custom of putting to death those who survive their strength has been found in full force. Every stage of progress, from this barbarism to the humanitarianism of our hospital and alms-house system, may be traced, and the obvious result is a gradual lengthening of the average life.

3d. Another important agency is the avoidance of epidemics. It is hard for us to understand the horrors of these visitations in former ages. There are no more thrilling pages in literature than those which depict them. The plague of Athens, as described by Thucydides and Lucretius; those of Italy, truthfully reported in the romances of Boccacio and Manzoni; Defoe's story of the plague in London; the accounts given by German and French chroniclers of the Black Death of the fourteenth century—all these are fresh, with their fulness of immortal agony, in every reader's mind. And thousands of such pests have swept across nations, and left no such records. In our times, vast tracks of Africa have been depopulated by fever; whole tribes of Indians have been destroyed by small-pox. We are exempt from such disasters. It seems that civilization has outgrown the danger of them. The test has been applied. The cholera was made dreadful to the thought by its ravages in the East, and by association with the plagues of history, when it began its march across the civilized world. But it touched enlightened nations too lightly to revive such memories. Of the 40,000,000 of people whom it slew in the half century after the wars of Napoleon, but the smallest fraction fell in Christendom. A century ago the small-pox was the scourge of mankind. Its deaths numbered 400,000 a year in England. La Condamine, the first authority in his day, who died in 1774, asserts that it carried off one-tenth of mankind, and disfigured as many more. It is practically abolished by a single discovery, which has added two years to the average life of man in Central Europe. The victories of civilization over some other diseases have been scarcely less signal. For example, scurvy in our navy has been exterminated. Death from it is now literally unknown. I have not been able to find the statistics of its earlier ravages there; but in the British navy, for two hundred years back, the mortality by scurvy exceeded that by battle, wreck, and all the calamities of sea-life together. Sanitary science has done away with it. In the thirteenth century leprosy was at least as common as measles now are. Matthew Paris perhaps exaggerates the number of lepers, when he tells us of 2,000,000 in France, and of 19,000,000 in Europe; but the disease was a general plague, and has disappeared before civilization. In the same way typhus, dysentery, yellow fever, scarlet

fever, in different degrees, are beginning to yield up their fatal energies, and we are learning to hope and strive for their extermination.

Other great calamities have been overcome or reduced in their proportions by the progress of society. Thus famines figure in the history of all uncivilized countries as causes of immense mortality. A large proportion of the whole people of Germany starved to death during the latter part of the thirty years' war. Mr. Froude finds that at least 200,000 lives were directly destroyed by the Irish famine of 1846. These are the frightful exceptions of an imperfect civilization; but in Germany, Ireland, or this country, now, one death by famine is enough to agitate the community, and is nearly impossible.; while in some barbarous countries, more lives are ended by want of food than by disease or accident. Civilization, by its arrangements for storing and distributing food, and by the greater certainty it gives to agriculture, prevents alike general famine and individual starvation, and thus lengthens the average life.

4th. Finally, I must dismiss with a mere reference a large class or causes which are working in the same direction; our advancing knowledge of the laws of health, and numberless applications of them, public and private; in police regulations, building laws, quarantines and public works; in the construction of dwellings, the heating and ventilation of rooms, the preparation of food and clothing, the hours of labor and rest. In all these there has been a slow practical improvement for ages; and there now begins to be a scientific improvement, which promises to be much more rapid.

In order that these remarks may not fill a volume, I must omit to discuss here the application of the doctrine of heredity to these forces, by which the impression they make upon the physical frame of man, in any generation, increasing its vigor, vitality and possible duration, is transmitted to posterity, and thus accumulated from age to age. It is this law which co-ordinates all the influences we have enumerated, and combines them into one movement, continuous and progressive. We may fairly affirm, then, that the average duration of human life is the most definite measure we can apply to the advance of civilization. The lowest races of mankind, in Sumatra, Borneo, Australia, New Zealand, Central Africa, Patagonia, are alike in this, that their life is short. Female beauty is in

its prime at 15; it decays after 22. Man is old at 40; he rarely reaches 50, or only in extreme decrepitude. If we turn from this state of life, in which our ancestors doubtless once stood, to the nations of Christendom, and classify them in the order of the average duration of life, we shall have arranged them also in the order of wealth, good government and intelligence. Average longevity is at once the most potent agency in producing these elements of prosperity, and the result which the forces of civilization unite to effect, and on which their energies are concentrated. In an economical point of view, this relation is obvious; for the lengthening of life implies, above all, the lengthening of the productive period—the increased proportion of producers to drones, and a diminished waste in unproductive lives. Herbert Spencer, after a careful survey of the biological aspects of human development, in one of the most suggestive books of our age, finds the fundamental fact in the restless antagonism between the development of the individual and the perpetuation of the race; and that this conflict "ensures the final attainment of the highest form of this maintenance—a form in which the amount of life shall be the greatest possible, and deaths the fewest possible." In other words, the lengthening of the average individual life measures human progress.

Now an eminent school of scientific men are teaching the doctrine of natural selection, or the survival of the fittest, as the key to all progress in nature. I wish distinctly to bring out the startling contrast between this law and the laws of progress in vitality which we have found actually at work in human history. The first condition of natural selection is wholesale slaughter. It begins by assuming the principle of Malthus, that life tends to multiply beyond the possibility of preservation; of the infinite mass that come into being, nearly all must perish unfulfilled. Who shall the survivors be? Those, of course, who, by superior vigor or by greater harmony with their environment, are most fit to survive. These alone live to reproduce their kind, and transmit the superiority which has preserved them; and thus, in successive generations, the race accumulates the qualities which promote life. Thus the natural process of advancement is founded on limitless waste; the growth of life is in the soil of boundless death; the better form springs ever from

a world of graves. Mr. Huxley tells us that the law of evolution, founded on this conception of natural selection, as explaining the mode in which the organic world around us has arisen, stands on a basis of evidence comparable to that which supports the Newtonian theory of the solar system. Let us admit it, then, to the full extent claimed. Admit that man himself, in the structural differences between him and lower forms, is the product of this law, and that, up to the time when he became distinctly human, as contrasted with his quadrumanous kindred, his development was governed by it. We shall see that his human progress is of an entirely different character. Observe that the forces which we find at work in the physical and mental growth of man are not merely independent of natural selection; they are exclusive of it, and at war with it.

Look at each of the agencies we have enumerated. Of a generation of infants entering the world, natural selection says, let them meet hardship, severity, disease, which will destroy all but the most vigorous, and leave those to become the parents of a hardier race. To the infirm of all ages, the diseased, the old, it says, Perish out of my way. You are worthless of yourselves; and, if allowed to multiply, you but perpetuate helplessness and increase misery. Of epidemics it says: Let them rage; they may sweep away strong and weak together, but not without discrimination. They destroy a larger share of the feeble, and leave the average strength of the race and its posterity greater than before. By the standard of natural selection, it would be clear gain that the human race should be exterminated to day, saving only a handful of the most perfect humanity, to re-people the world after a higher standard.

But the foundation of society introduces the opposite principle. Family affections and social ties have their meaning in the value of the individual life to others, its value to society at large is the central thought of civilization. The preservation of each by the common work and mutual aid of all is the aim of government and law; the basis of families, communities and nations. Thus the formation of society is the reversal of the blind law of unconscious advancement, and its every step forward weakens the force on which this natural development depends. Its history is a struggle against the conditions of natural selection, and a steady reduction of its area of influence.

Society preserves for the progenitors of the future alike the weak and the strong, the diseased and the healthy. If, then, this blind law is the one key to progress, man must degenerate. Pessimists, then, are right in holding that all our charities, public institutions, sanitary improvements, the very order of society itself, are but means of protecting the weak against the sentence of nature, and of perpetuating their weakness. Benevolence is then but folly, mercy a crime, the charities of civilized life a pernicious force, working for the degeneracy of the race.

There is but one reply: Civilization does largely sacrifice one principle of progress, the law of evolution by survivorship; but it introduces another more potent principle. Under natural selection, improvement must needs be fitful, occasional, and immeasurably slow; because the variations upon which it works, and among which it chooses, are but casual deviations from an average standard, which it can at most catch and preserve. But civilization possesses the element of individual culture, by which the standard itself is raised from generation to generation. Society educates the child into a higher type of power, endurance and refinement than that in which he was born; its effect are stored up in muscle, nerve and brain, and through him transmitted to posterity, and thus accumulate from age to age. Under natural selection, when variations in capacity arise, thousands of them are wasted where one is secured, fixed and transmitted. But human society economizes much of this waste, fastens upon and improves an immensely larger proportion of the capacities lavishly produced by nature, and thus concentrates in the brief historical movement forces which would otherwise spread their operation over countless ages. Thus it is the characteristic of civilization that the hereditary accumulation of intellectual and moral culture gradually supersedes the unconscions and physical law of selection as the agency of progress.

Now history, while it has been a struggle between these two principles of advancement, has also been a test of their comparative power. Natural selection, as its ablest expounders have shown, works with such extreme slowness, under the most favorable cirumstances, that the progress of its work has never yet been detected by observation. No instance is known of its having effected any marked and important change in any race of creatures, during the

period of History. Vast as is its cumulative force, it is exerted only in the course of ages, defying our imagination to span; and to accomplish a small part of its work, it must cleave its path of misery and slaughter through epochs measured only by the formations of geology and the cycles of the stars. But the intellectual and moral forces of culture, which have superseded it in man, have actually, within the brief space of a few thousand years, achieved the world of happiness in which we live. The rocks register the story of a blind evolution, which they tell us is still going on as rapidly as ever, yet so slowly that the eye which watches for a few centuries or millenniums can discern no movement; they cannot explain those laws by which, within generations too few to make one of their minor epochs, the beastly companions of the cave-bear and the mammoth, the wandering barbarians of the flint period, have produced the intellects of Shakspeare and Newton, the scientific culture and the free society into which their descendants are now born.

We have seen that where animal evolution ends and human progress begins, the laws of individual and hereditary culture supersede the law of natural selection. An interesting consequence of this is the fact that it makes a place for the prolongation of the individual life beyond the period of vital and muscular activity. Under the reign of natural selection, there is no position in the universe for the being who has passed the reproductive stage of energy. Hence wild animals, soon after this period, usually die; and similarly savage society has no home for old age. But civilization centres wholly in the intellect, whose forces are communicated by other than vital processes—in ideas which move and mould the world through the minds and the posterity of others; and the intellect, under favorable circumstances, not only continues its work, but grows in efficency and usefulness long after time has impaired the physical powers. It is in civilized society alone that the activity of the brain makes old age valuable; and as civilization advances, the economy of preserving a strong and cultivated mind through the longest possible period of activity becomes more and more practicable, and yields a richer reward. Thus it is a strictly scientific truth, that the best symbol of progress, the pride of social achievement, the noblest ornament of our race, is the venerable man, who, in a decaying body, preserves the energies of a wise, benevolent and vigorous mind.

If so much has been done by the semi-conscious work of society, in using and developing the natural forces of man, how much might be done by a perfect organization of society for that work? This brings us to that stupendous conception to which, more in jest hitherto than in earnest, the term stirpiculture has been applied. But we can imagine a future sect of positive philosophers, who shall reason as follows: Man has been produced through vast epochs by natural selection; he has been immensely improved in one era by the half-conscious, imperfect form of selection which has superseded it; and it is certain, therefore, that nature has placed in him, in the processes of growth, waste and decay, an infinite elasticity. Were society organized to improve this elasticity to the utmost, he might rapidly scale heights of being which are unimagined now. Take up the average duration of life, for instance, and make its increase the intelligent aim of society. Subordinate to this aim all the relations and affections of men; let marriages be planned, posterity sifted, medical and social science directed, for the one end of lengthening life; and in generations as few as are required by the horticulturist to produce the gorgeous multiple flower from the timid wood blossom, or by the breeder to bring the fleet-wind racer from the ordinary horse, we might become a people of patriarchal longevity. Nay, let society choose its own ends, set before itself the highest conception of a model humanity, and sacrifice all individual and personal aims to its attainment, by a vigorous selection and preservation of every tendency towards it, and then will begin the evolution of the golden age. We can imagine, I say, such a sect of philosophers; and violently as such a society shocks our habits of thought, there is a tendency in contemporary mind to precisely this system. This is, indeed, the logical extreme towards which our science is pointing; never to be realized in all its naked absurdity, of the absolute loss of the individual in the idea of the race; but destined, as a tendency, followed with greater or less intelligence of its real character, to jar harshly and shock fiercely in the future against the cherished rights, affections and aspirations of the mind, which cannot despise its own personal consciousness, nor unlearn its own hope of immortality.

Thus our special subject leaves us at the threshhold of a world of restless thought. And at the close of our study,

as at its beginning, the Sphynx of Life still stands before us, with her problem unsolved: Is it in the destiny of the race, or in that of the individual man, that we are to seek the end of our being? But if we have not found the answer, we have found reason to be content without it. The two conceptions of life seem to us wide apart, when we contrast work with culture—the creed of the Presbyterian with the creed of the Transcendentalist, the life of John Howard with the life of Goethe. But in the principles which underlie the progress of mankind we see a tendency to reconcile the two. The capacity for individual culture is a growth from the soil of an advancing race, and the further that culture is carried, the more richness it returns to the soil. So we may be sure that the time and effort wrested from personal growth for the service of society in its thousand forms is not waste for the individual; that the time and effort withheld from social work for personal culture is not lost to mankind; and that every step towards the more perfect organization of society leads to a wiser and more fruitful distribution of its forces between the two ends, making them one.

School Hygiene.

We learn from the *Sanitarian*, that during a discussion upon "School Hygiene," recently in the N. Y. *Medico-Legal Society*, the subject as to whether the eyes of the children of our common schools were injured by the means of education employed in them was considered. While this topic was under consideration, Dr. Robert R. McIlvaine, formerly of Cincinnati, made the following very appropriate and very correct remarks on

PROPORTION OF BLIND TO POPULATION.

Dr. Robert R. McIlvaine said he wished to ascertain from Dr. Agnew what are his data for the condition of the eyes of the children of schools? Where does he begin, and what length of time have they been deteriorating? I wish to know what is the proportion between the whole number of blind to the whole population at home; and how does that ratio compare with the same population of unfortunates on continental Europe and in the islands around it?

Dr. Agnew. I do not know.

Dr. McIlvaine. Now, the Common School is the first product of the Reformation, first inaugurated by Luther, in Saxony, with the assistance of Melancthon, in 1525, and it went into operation, I believe, in 1527. If this use of the eye causes deterioration, then the Saxon people would be by this time in a helpless condition, because during the last 350 years they have been using means to promote blindness.

Is it a fact that the use of organs is destructive to them? Is it not rather strengthening to them? Is it not a physiological fact, that the use of all of our organs is a means of fortifying them against harm, and of preparing them for usefulness? Has it been demonstrated that myopia—or near-sightedness, as it is called—is a progressive infirmity? Mr. President, I want to know your experience.

The Chair here answered that the *abuse* of the eye causes the disease referred to.

Dr. McIlvaine. Excuse me, Mr. President, that is a new departure; we are not speaking of that. To begin with the last data in my possession: In England and Wales, in the year 1851, there was one blind person to every 979; in Ireland, one to every 878; in Scotland, one to every 960, making a common ratio of one in every 950. In Belgium, the proportion of blind to the other population is one in every 1,316; in France, one in 1,357; in the lower parts of Germany, one in 950; Prussia, one in every 1,401; Saxony, one in 1,666; Switzerland, one in 1,570; in Sweden, one in 1,091.

Let us now return home. The population in 1850 of blind, of deaf, of dumb, of insane, of idiotic, in the United States, numbered 50,994—being one blind person in every 2,368; in 1860, one in 2,519—and this is what our experts designate progressive blindness, Mr. President. I am happy to say that these facts have been so. I may add, in the language of the psalmist: "God hath not dealt so with any other nation." We have fewer persons suffering from this infirmity than any other people of whom we have published records. We cannot presume on this matter, nor be deluded by the mere declaration of experts. This is too serious and important a subject. If the schools are preparing a population of unfortunate blind people, why, it is one of the greatest calamities that can possibly befall the race, and would imply a deterioration of the race in

common. But I am happy to say we have data to the contrary. It will be remembered that in the state of New York, in 1860, among the white people, one in every 2,327 was 90 years of age, and one in every 41,647 was 100. You remember I am speaking of the Caucasian race. The data, as to the eyes and longevity, is applied wholly and particularly to the white people. We must not allow ourselves to be led into error by declarations unsupported by demonstration. While giving these gentlemen credit for their industry, we want to have data by which, as a touch-stone, to refer these circumstances to. This, I regret to say, has not been the case; we have here an accumulation of data, without any landmarks whereby to ascertain whether we are deteriorating or whether we are improving.

In relation to the Report of the Committee, there was a reference made to the unsanitary results produced by the contact of water with coal in the cellar in bulk. Now, gentlemen, we know what water is composed of: oxygen 8, hydrogen 1—making 9, while the coal that is generally used, I believe, is composed of carbon 75.28 (what is called coke coal), hydrogen 4.18, nitrogen 15.96, and oxygen 4.58. Now cannel coal is composed, according to analysts, of carbon 64.72, hydrogen 21.56, nitrogen 13.72. So that you see there are none of those elements that are in themselves, or as far as we can see, brought in contact, which are capable of producing what are called poisonous effluviæ or poisonous products.

In 1872, on my way to Paris, I was, while in London, asked by a gentleman to listen to a lecturer on sanitary science. Being presented to the lecturer after the close of his discourse, I observed to him that one thing he had either forgotten or overlooked. I referred to the location of a house: that a house placed east and west had the sun only one-half of the day, whereas a house placed north and south had the sun in the forenoon and in the afternoon —the east side in the forenoon and the west side in the afternoon.

There is something in understanding how to place a house in order to have it placed in a sanitary condition, and there are but few who appear to appreciate it.

In speaking to a gentlemen who called himself a sanitarian, the other day, concerning this matter, he said it was a mere whim—it was immaterial how a house was placed.

Now the parties who had charge of the building of the Women's Hospital, as it is called, and the parties who had charge of tne Presbyterian Hospital, did not know how to use the ground. I speak of this because I have seen the house externally. The St. Luke's Hospital might have been arranged so that the sun would have penetrated every department, as they had the whole lot under their control. It therefore would appear that there are to be taken into account several considerations in building a house.

1. In the location of the house in regard to the sun, which is never to be dispensed with, if we possibly can control the ground on which we build. 2. A building should be so constructed that every department of it shall be the recipient of this great luminary, which is itself life-giving and life-preserving.

He made no answer. He stated that it was difficult sometimes in the city. I told him that was true; but where you can control land the sunlight should never be dispensed with.

Treatment of Carbuncle.

When the carbuncle is seen early, puncture it, and with a camel's-hair pencil, or small pointed stick, introduce into the opening thus made the pure and undiluted acid. If the disease has made greater progress, and one or more small acne-like pustules have made their appearance on the tumor, these are carefully opened, which can be done without causing pain, and the acid introduced at each opening, as before indicated. The effect of the acid when first applied, especially if it touch a denuded surface, is to produce a sharp, stinging pain, which is, however, of but momentary duration. The next is local anæsthesia, and the patient is, for a time, perhaps hours, free from pain. Carbolic acid possessing in a notable degree anæsthetic, antiseptic, and caustic properties, would seem to be peculiarly adapted to the treatment of the disease under consideration, which is usually attended with great pain, sloughing, and an intolerable odor. Its use in my hands has certainly seemed to dimiuish the pain, correct the odor and arrest the sloughing process with much promptitude. After the acid has been applied, collodion should be several

times painted over the carbuncle, and beyond it, a few lines, on the uninflamed skin. *All the openings are to be left free*, in order to give egress to discharges. Each layer or film of the collodion should be allowed to dry before another is put on. This dressing may be renewed once daily, and the collodion previously applied, if partially detached, should be peeled off before a new application is made. If the part on which the carbuncle makes its appearance be covered with hair, this should be cleanly shaved off, otherwise the collodion will be difficult to remove, and at the same time cause considerable pain. It is interesting to watch the collodion as it contracts upon the diseased tissues. The skin, previously red and swollen, will in a few minutes be seen through the transparent gun cotton to have become pale and depressed, as the pressure gradually empties the engorged capillaries. If the disease is advanced, and sloughs have become partly separated, they are not unfrequently forced out, or brought so near the openings as to be readily detached with scissors. The pressure does not give rise to pain, but on the contrary, generally affords much relief to the suffering patient. The application of collodion in this disease has other advantages. It limits the extent of the disease in decreasing the vascularity of the part, and in this way lessens the inflammatory action going on, and probably also prevents the absorption of pus. It also protects the surrounding skin from contact with the discharges, which, as is well known, are capable of producing, if hot an extension of the disease, numerous small boils, which are of themselves an exceedingly annoying complication. Should, however, any such pustules or boils be formed in the course of the disease, they can be cut short by touching them with carbolic acid. After the carbuncle has been treated with the acid and collodion, it should be protected from contact with the clothing, by covering it over with a piece of old linen or cotton cloth, saturated with sweet oil, or spread with carbolic acid cerate.—*Dr. Dibrell, Med. and Surg. Reporter, Phila.*

THE DISCOVERY OF ANÆSTHESIA—Is the subject of an article in the *Virginia Medical Monthly*, for May, by Dr. Marion Sims, wherein he declares that Dr. Crawford W. Long, now of Athens, Georgia, was the first man to intentionally produce anæsthesia for surgical operations, and that this was done with sulphuric ether, in 1842.

Microscopy.

Dr. Thacker;

My Dear Doctor—The paper on "Post-Centennial Microscopical Notes," which you kindly published some time since, having elicited comments which have been remarkable for cerebral aridity more than for a knowledge of the subject, I send you the following authentic historical notes, which I beg you to publish for the benefit of those not fully posted.

Very respectfully, J. G. Hunt, M. D.

What I Know about some Late Improvements of the Microscope.

Read before the Biological and Microscopical Section of the Academy of Natural Sciences of Philadelphia, June 4th, 1877, and directed to be published.

By Joseph Zentmayer, Philadelphia, Pa.

A recent paper, by our fellow member, Dr. J. G. Hunt, entitled "Post-Centennial Microscopical Notes," read before the section, and published in the Cincinnati Medical News, has provoked considerable disscussion, especially that part relating to my American Centennial Microscope, setting forth the improvements embodied therein. Some of these important improvements have been claimed by other makers, and I propose to bring the subject before you for investigation, and to endeavor to right the matter satisfactorily to all concerned. In order to make the investigation a thorough one, it will be necessary to call your attention to the so-called Grand American Stand, made for the Academy in October, 1856, which now stands before you. The novel points of this stand which I claimed at that time were:

1st. The Stage with graduated revolving plate to serve as Goniometer. Although very firm it is only $\frac{3}{16}$ inch thick, and is even at the present date the thinnest mechanical stage.

2nd. The graduated revolving base for measuring the angular aperture of objectives.

3rd. The hanging of the mirror to a joint as near as possible to the plane of the stage.

Early in 1860 I made three stands (Nos. 13, 14 and 15), precisely like the so-called Grand American, but somewhat lighter, to accommodate Dr. Francis W. Lewis, also a member of the Section. One for himself, one for Dr. John L. Le Conte, and the third for S. Weir Roosevelt, a lawyer of New York, since deceased, which was ordered for him by

Dr. Francis W. Lewis. Mr. Roosevelt was not in favor of mechanical stages, and desired me to design for him a revolving stage, the object to be moved by hand, and it was for him that I constructed the first of my graduated stages, giving a complete revolution in the optical axis *in a large ring, which is adjustable within another by three screws*, in order to have the axis of the stage coincident with the optic axis of the instrument, exactly the same as the one before you, which I made for our President, Dr. R. S. Kenderdine, early in 1866. This stage has been for years extensively copied in France by Mr. Nachet, and in England, among others, by Mr. Crouch, who first (likely in order to make it cheap) left off the centering adjustment, to adopt it a few years latter, claiming it as his invention.

The hanging of the mirror by a joint as near as possible to the stage I adopted long before I made the so-called Grand American Stand. The first large stand I made for Dr. Jos. E. Parker, since deceased, now in possession of Dr. John H. Packard, also a member of the Section, has such a swinging mirror.

The microscope to which I will now call your attention is one which I made in 1864, for Mr. E. Furber, 253 Market St., Philadelphia, who kindly loaned it to me for this evening. The accompanying photograph, which he presented to me about that time, he says was made on Thanksgiving day, 1864. It is one of my Army Hospital Stands, almost the same as made to day, except that a sliding substage is attached to the prismatic mirror bar to receive the accessories. In the photograph you see an achromatic prism for oblique illumination, (an apparatus, which since has also been brought out as new.) Although handy as a mechanical contrivance it is not of much importance. The mirror stem is only jointed near the stage, and has not the object under observation at its precise centre. If it had it would be exactly the same as the swinging sub-stage and mirror of my new Centennial Stand.

About two years years ago, in a conversatson with Dr. J. G. Hunt, he pointed out the importance of having an arrangement for illuminating the object by an achromatic condenser, in oblique position. I explained to him how I would make a stand, in which this idea would be carried out in the most complete manner. The design and drawing were made soon after, but the instrument

was not brought out then, as I intended it for the Centennial Exhibition. Some of you had seen it before, and previous to bringing it to the Exhibition, you recollect, it was shown at our meeting here in April, 1876.

Messrs. Bausch & Lomb, of Rochester, N. Y., exhibited at the Centennial a microscope stand, with glass stage (a modification of mine). The mirror hung to a swinging arm, and a diaphragm was attached to the mirror stem, quite similar to the instrument and photograph before you made thirteen years ago. The joint was *not* in plane with the object, but below the surface of the stage, and the diaphragm was attached to a lateral slide, in order to make use of it when the mirror was hung obliquely, which is a clear proof that the joint was *not* in a plane with the object. I admit that in the way they accomplished it they could have placed the joint higher, as they did in instruments brought into the Centennial Exhibition at a later time, but at a loss of extreme obliquity. To bring their mirror over the stage is utterly impossible. Mr. Gundlach, the designer of the stand, who is in the employment of Messrs. Bausch & Lomb since Jan. 1st, 1876, might have hung his mirror higher, but he did not "grasp the idea." Their instrument involved nothing new in relation to the swinging sub-stage that you do not see in the instrument made for Mr. E. Furber, thirteen years ago, and which now stands before you.

A few days ago Dr. J. G. Hunt showed to me a letter received from Mr. W. H. Bulloch, of Chicago, accompanied by cut and photographs. Dr. Hunt had the kindness to hand photographs and cut over to me, which I lay before you. One photograph shows that Dr. Bulloch has adopted my circular, graduated, *adjustable* glass stage, claiming this old invention of mine as his own.

According to his own statement, he made it first in July, 1870, just ten years after I introduced it.

The large cut and the other photograph represent his large binocular stand, also with adjusting screws to the adjusting revolving stage. The mirror stem is apparently stationary, and the mirror is attached to it by a double joint, permitting some oblique illumination. But the important part of this instrument is an arc below the stage, which is traversed by the sub-stage. The centre of the arc is evidently in the plane with the object, and therefore the sub-stage can be placed radial to the object, provided

the somewhat complicated mechanism is made and used with care. The angle of obliquity, of course, is a limited one, and even with a stage as small and thin as my diatom stage, it would not be possible to obtain an angle sufficiently great for the present requirements, neither with the mirror nor condenser. As the mirror does not swing with the sub-stage, (which, strictly speaking, cannot be called swing, except to identify it with mine,) it is difficult to get the mirror centered with the condenser. The photograph is marked Sept., 1873, making it evident that it is the first attempt to place the achromatic condenser in an oblique position to the optical axis. But comparing this arrangement with mine, as I have designed and adapted it to my stands, the difference in the execution, although involving the same principle, will be seen at once. His is a heavy, costly attachment, limited in its movement, and unhandy, as the mirror does not follow the sub-stage; and when the mirror is used alone it is of no use whatever; while in mine the mirror and sub-stage movement is only limited by the body of the microscope, and can be used below or above the stage, always having the object as its centre, and in such a simple way that not a single extra piece is added to an instrument with the ordinary swinging mirror, hence we can adapt it to our cheapest microscopes.

Mr. Bulloch claims to be the first to use the mirror above the stage, instead of the bull's-eye, according to his own statement, in 1870. I can only say, if Mr. Bulloch did not accomplish it before that time, that he is the *last* one I know of who invented it. Spencer, Tolles, others, and myself did the same thing many years before, and the little so-called candle-stick stand, made and presented to our section by Mr. Ed. Tilghman about eighteen years ago, is capable of doing the same thing. Some accomplish it by detaching the mirror, others by adding joints to it. If accomplished in this way, it is not worth the sacrifice of stability incurred.

But with my swinging arrangement, unobstructed by any part of the microscope but the body, it is an unsought natural result of the thoroughness and simplicity of the mechanical contrivance, which constitutes the value of my patent.

Mounting Vegetable Tissue in Balsam. Also Dry-Mounting of Crystals.

DR. J. A. THACKER:

Dear Sir.—Supplementary to my previous article I ask space for the following, promising to beg no more similar favors of you, for a week or two at any rate.

As the information I wish to convey is intended for beginners in this most fascinating of arts, it will be necessary to enter somewhat minutely into details.

First, concerning the balsam. Every mounter should prepare his own. For this purpose he should procure a circular tin dish, about twelve inches in height, and five or six inches in diameter, having a "septum" soldered in four inches from the top. Just below this false bottom a little group of punctures should be made, to let out steam or air; and opposite to them a small nozzle, for filling the lower part with water. A close fitting cover caps the affair.

The balsam is best "cooked" in morphia vials. These are filled three-fourths full, and covered with two thicknesses of filter paper snugly tied around the neck. These vials are placed in the dry chamber, a piece of thin blotting paper having been put under them. The lower chamber is filled about two-thirds full of water, and the dish placed on a stove where the water is kept boiling for several hours a day, care being observed lest the water boil wholly away. After eight or ten days the testing may begin. A vial is taken out and allowed to cool. If the balsam be found no longer sensibly fluid, it is done. If there be any motion on holding the vial in a horizontal position, it is not done, and must be returned. From day to day this testing may take place, until the cooked balsam gives no sign of fluidity. When the tedious job is over, the complacency at the contemplation of the precious result from time to time will probably prove ample compensation for the outlay of trouble.

Prepared balsam is best thinned for use by adding in the drop-bottle one-third of its bulk of benzole, and allowing it to stand three or four days.

For information regarding other media I refer the beginner to Davies' Handbook.

The object being taken from the turpentine (benzole

gives a great deal of trouble in the shape of bubbles in the cells), is laid upon the centre of the slide. This centre may be indicated by a circle drawn with ink, the slide being placed on the turn table, the circle being slightly smaller than the cover to be used. Be sure your circle is on the under side when the object is laid on.

Examine the object for shreds, with which the air is always richly stocked apparantly—especially so while mounting is going on—occasionally putting a drop of turpentine on the object. It may be set down as a rule that one or more shreds will reward the search, there being a kind that the most elaborate and skillful brushing in turpentine only causes to adhere more closely. Not finding any may be taken as evidence that the examination has not been thorough. They are best removed with a pair of light, sensitive forceps, under a sharply defining hand glass of six or eight diameters. Dragging with a dredge of hairs not stiffer than ordinary human beard, is sometimes necessary.

The surface being found perfectly satisfactory, drop on a small quantity of balsam. Place the cover by means of your forceps or cover-holder (a wonderfully convenient thing) on the object, inclining the former a little, and so letting it down as to carry the air before it.

If vegetable tissue be the object, a minnie-bullet, middle size, should now be placed on the cover. If the object be much thicker on one side than on the other, a bit of thin glass can be pushed under the edge of the cover to compensate the thickness, so arranging it that it may be removed when the balsam has hardened.

Lighter or heavier weights may be used, according to the nature of the object or the stage of preparation. Very minute objects, such as pollen, hairs of leaves, crystals, fossil shells, diatoms, etc., never need any weight. Bubbles invariably find their way out, sooner or later. If too little balsam has been used, more can easily be run in at the edge of the cover after the bullet is on.

In winter the slide should now be put in a warm place, as on a stone mantel piece behind or over a stove, and kept there for a week. In summer artificial heat is not necessary. At the end of a week the superfluous balsam is removed, first with a small sharp blade, then with benzole, by drawing a rag tightly over the forefinger of the right hand, and dipping in benzole, shifting the rag on the

finger from time to time. The rag may be as large as a hankerchief, and should be entirely destitute of nap. Having removed the balsam nearly to the edge of the cover, and letting the slide lie for a few minutes, place the latter on the turn table, and with a small flexible brush carefully draw a ring of balsam, specially hardened for this purpose (softened of course with chloroform or benzole). The ring is formed by repeated application. It should come slightly over the edge of the cover, and be so built up that it slants evenly down to the slide. Two or even three sittings at it will be found advantageous. After standing another week, with a slight weight on the cover, the slide is ready for finishing. My mode is this: I first draw two very narrow, but distinct rings of zinc-cement, one close to the edge of the cover, the other just below the first. They are allowed to dry for several hours; then a well-marked ring of asphalt is drawn below the second white one, yet touching it. This ring must reach entirely over the remainder of the balsam one. If the slide be of uniform thickness, and the cover perfectly level, this form of finish is certainly very agreeable to the eye, and it does not lose its charm by familiarity. As this part of the work is confessedly a good field for exhibiting taste, the mounter may be urged to try for an adequate expression of his own notion of how it should be done. A present fancy of mine is to run a single white ring close to the cover, then a broad black one. The black one is reduced to an octagonal shape, and on the tips minute white dots are dropped. It pleases me, however, a little too much, I expect to get sick of it.

After a few hours the slide is cleaned by means of very dilute (ten to one for instance) ammonia; benzole being used to remove any ghostly traces of balsam around the ring. Labelling follows, and more or less complacent contemplation.

CRYSTALS.

My attention was particularly called to crystals, separate from plants, by a discovery made by me last December. In experimenting for the best oblique illumination, I was one night startled by finding the field (of diatoms) suddenly filled with gems such as only polarized light can yield, while at the same time the ground was perfectly black. On looking at the mirror, I saw that I had unconsciously carried it quite to the left (the lamp side) of the

axis of the objective. Noting the position of things, I was the following night able to reproduce the effect. I diligently followed the thing up, until I reached what I will now describe: I place the kerosene lamp without a screen, about fifteen inches to the left of the stand, the latter being at right angles to the former. A slide of Nottingham Earth is placed on the stage, and focussed by direct light. The mirror is then slowly carried to the left until the field is nearly dark. Afterwards the mirror is very carefully moved away from or toward the observer, as it were feeling with the utmost minuteness for the angle. When the angle is hit, it will be manifest by the diatoms appearing illuminated with polarized light, those best formed for polarization showing as the most exquisite gems conceivable—indeed passing conception. That the light is really polarized is, I think, proved by the fact that by a slight shifting of the mirror the complementary colors are shown in the same object. By a horizontal arrangement I have adapted my bull's-eye to the use of a condenser. By careful adjustment I get rid of all decomposed light, obtaining a perfectly achromatic result, and very greatly increasing the intensity of light.

When the right angle is secured without the condenser, the latter is placed close under the diaphragm, concave side up. The faint spot of light on the cover is made to present itself just to the right of the objective. I then adjust with my eye upon the tube, if the effect is not reached, the condensed light is caused to come directly under the objective, the mirror being afterwards carried a little further to the left, and adjusted as before.

Diatoms and polycystines are the objects most easily exhibited, then crystals.

Salicine (in balsam) gives a brilliant gold color with silver points. Salicylic acid from alcohol (dry-mounted) shows gold and green, with shades of purple and silver points. Santonin from chloroform (dry) shows gold and green, sometimes so blended as to have a truly supernal effect. Iodoform has always three colors, red, gold, green, and often violet, purple and dark gold. Chromic acid from absolute alcohol (dry) is the most brilliant of all. This crystal first takes the form of a double layer, the upper layer soon begins to cleave with every possible variety of line, often producing groups, the exquisite symmetry of which is indescribable. The surfaces of

these lines seem to act as analyzers, and we have green, orange and red presented in a brilliantly beautiful form.

Crystals in plants, when they are in the same plane, can be well shown by this light; pollens also, and stellate hairs in glycerine jelly. Very thin transverse sections of bamboo, rushes, and the like, make fine pictures. Anything thin enough to be illuminated without change of focus is not only beautiful, but the minute parts are more precisely defined than in any other light. The most suitable powers are half, fourth, or fifth inch.

Precise measurements would aid but little, as stands and stages differ so much. Only the above general directions can be given. The observer must find out the exact thing by his wits, helped by steady nerves.

The manner of forming and mounting such crystals as are most interesting, may now be briefly stated.

Salicine is formed and mounted as Mr. Davies directs. Salicylic acid should be mounted dry, it is crystallized from common alcohol on a slide slightly warmed. A few seconds of sharp heat, after the drop has spread, and before the crystallization has proceeded farther than the edge, improves the forms.

As soon as cool, a balsam ring is drawn around it; and after a few hours, another upon the first. After three or four days, the cover may be put on, first slightly warming the latter over a lamp. In a day or two a thin coating of balsam is put on the edge of the cover. After a day, this is repeated. At the end of a week the slide may be finished with cement, etc.

Mounted in this way are all the others, except iodoform, which disappears in a short time. Santonin is very permanent; also, chromic acid. Santonin makes altogether the finest appearance from chloroform, equal weight. Crystallized without heat, the effects are so peculiar, that there should be a slide of it prepared in that way; heat to 200°, or higher, after the crystallization has gone on for a few minutes on a cool slide, gives a finer variety of form. Chromic acid should be allowed to form on a slide warmed to 90° or 100°; then heat to 130° or 150°. The acid should be dissolved while red, and in absolute alcohol, being allowed to stand half an hour or so.

If the reader has any questions to ask, they may be put by mail, and will be cheerfully and as lucidly answered as possible. Very truly, yours, S. R. PEET,

428 N. Carey st., Baltimore, Md.

Botanical Microscopy.

Philadelphia, July 9th, 1877.

DR. J. A. THACKER;

Will you allow me only a few words about Botanical Microscopy? Your genial and successful correspondent, Mr. L. R. Peet, from Baltimore, very justly declines to be classified among paleozoic fossils. Such good workers as Mr. Peet are doing much to facilitate the study of microscopic botany; but is it not possible to do *just a little otherwise*, and thus retain *in* their preparations more of the morphological elements to which nature has put there? Should not some advance be made to meet the more critical demands of the times? In microscopy we are *not* living in the year 1870.

It would seem self-evident that the best botanical work was that which revealed best most of the tissues of the plant. Taking this thought then as granted, I will venture to be a little more technical. In many of Mr. Peet's slides, as well as in many of my own of paleozoic era, and also in those of other workers of good and ancient repute, I fail to find the cuticle in sections of stems and leaves. The secondary deposits in the young bast-cells and cambium cells, etc. are successfully removed. The protoplasm with nuclei, which form essential elements in cell-anatomy, and which are translucent naturally, and easily retained in situ, and may be differentiated by *treble* staining, are gone. The cell-walls, often attenuated by bad work, are retained and colored *blue*, a less natural die than green for plants. There is a wearisome sameness in results; an absence of vivid and educational differentiation of tissue in such slides, which forbids a teacher demonstrating from them the complete anatomy of the cell. Such slides are beautiful to the uninstructed; they are *unsatisfying* to the botanist; and hence I have compared them to fossils in the rocks. Yet fossils are said to be useful.

Can better work be done? Yes; and the time has come when we must do it. There is much in the plants other than cell-walls of elegant form and significance. There are secretions and excretions, which we can retain in situ —there are curious glands not yet recorded in the books— delicate protoplasmic structures in which nature records

her marvelous stages of growth, and which we must not remove by faulty work.

But, to state the subject more practically, I propose that workers in this line of preparations shall be called together at such time and place as you, or some other authority may select, and let each one present his results, and exhibit them as he deems best. That would test, and perhaps settle the question, and might prove of mutual benefit.

Moreover, Mr. Editor, several microscope makers, and some who make other wares than microscopes, are claiming to have originated and *made* the swinging, concentric, and self-registering bar below the microscope stage. Now, therefore, to avoid the necessity of having hard words on the subject, I propose that all interested in the matter meet, with their improved instruments, at some place and time appointed, in order that *results*, and not mere words, may be compared for the benefit of those who desire to know.

Hoping that neither of these fair propositions will be evaded by the active leaders in the work, who are mostly practical men, I remain, respectfully, yours,

J. G. HUNT, M. D.

R. Hitchcock, Esq., v. High angles,

In the May number of the *American Journal of Microscopy*, I find an article containing a good natured criticism of a paper read by me before the Dunkirk Microscopical Society last October.

Mr. Hitchcock candidly states that he has only seen a short abstract of this paper, and has but an imperfect knowledge of it. He further suggests that his main object was to call further attention to my views, and he suggests that I put them in form, so as to be published in the *American Journal*.

For the benefit of Mr. Hitchcock I will state, that my views have been clearly stated in a series of articles, which have been published in the CINCINNATI MEDICAL NEWS during the past three years, under the caption of "High vs. Low Angles," and have thence been quoted from and reprinted in various publications; certainly I

cannot be expected to go over the ground anew at this late day. It is true that I exhibited before the Dunkirk Microscopical Society the No. 20 of the balsam Moller probe platte, and also the 19th Nobert band, both so plainly that all who were present saw without difficulty. These tests were *not* difficult for the glasses employed, as was attested by the fact that they were shown in a crowded room, amid the attendant jars and vibrations, my object being to *demonstrate* the facility with which my Tolles' duplex glasses handled these so-called difficult tests.

To show the work of these same lenses by central light, I selected the same test, *Nav. Angulatum*, which the biological committee at Philadelphia has declared *impossible* to be shown at a less angle than 20 degrees from axis, with any medium power glass. This test was displayed illuminated by light through a central aperture placed close to the object, just large enough to light the field, the diameter of the aperture being about $\frac{1}{200}$th of an inch, direct light being used, *i. e.*, without mirror or condenser. The ease with which the duplex handled this test was made amusing and apparent by my picking up the stand, walking around the room, setting it down again hap-hazard before the lamp, when the resolution was found by a gentleman appointed to examine to be unimpaired. This was repeated three times. Will Mr. Hitchcock repeat, using a low angle glass, be it a $\frac{1}{5}$th or a $\frac{1}{50}$th, and report?

I had other tests for central light work, including histological and pathological preparations. It was impossible to show all of these to so many people as were present; as it was the entire evening after the reading of my paper was occupied. Hence, it will be seen that I fought the low angles on their own *chosen* ground, and with the express view of demonstrating that the very best performance of the duplex lenses is seen by central light.

Mr. Hitchcock further says that "the universal testimony of our best authorities, who have spent their lives in microscopical work, is against Prof. Smith."

It was just this kind of testimony that affirmed, a few years ago, the highest *possible* aperture of an object glass to be 135 degrees; that the resolution of the Nobert 19th band was a matter of faith rather than of sight, etc., etc. Mr. Hitchcock is welcome to the witnesses.

Note this fact, to-wit, in original investigations, the advanced worker must necessarily be in a minority. I rejoice that some of Mr. Hitchcock's witnesses have lately found cause to change their opinions. Dr. Carpenter will no longer assert that the resolutions of the Nobert 19th band is a "matter of faith, rather than of sight." On the other hand, he has given unqualified endorsement to the superiority of the duplex glasses.

Mr. Hitchcock desires to ask *why* I think that most of the work in histology and pathology already "done" with the so-called "working lenses" of narrow angles would require further attention, and with wide angled glasses. I reply, that in the past four years great advances have been made in the construction of objectives, and in the manipulation of the microscope; what was considered a "good working glass" ten years ago, would *now* be totally valueless for advanced work. We now demand, as near as may be, perfect lenses, and superior dexterity in handling them; and these two conditions are inseparable. The finer the objective the louder the call for expert manipulations. That well-known term, "working lenses of narrow angles" means, when stripped stark naked, easy going lenses, with no screw collar to bother; good working lenses, that a child or sleepy adult without experience can use right along, will work through covers of common window glass, big working distance, and all that, etc., etc. Such *are* admirably adapted to the use of those who use the microscope as a plaything; admirable things, too, to prove that "a little knowledge is a dangerous thing."

Be it known, that I do not condemn an objective simply because it has a narrow aperture; conversely, I do not endorse a glass on account of its wide angle. I have seen scores of wide angle glasses not worth the cost of their brass mountings. As to "errors in interpretation," the more perfect the lens, and the more expert the manipulator, the less chance of error. Under high amplifications, a superior wide angled glass, *properly handled*, will generally prove the more reliable; and in advanced work *cannot* be dispensed with, be the illumination central or oblique.

Finally, I have to thank Mr. Hitchcock for his friendly criticism. He seems, evidently, to be after the facts. I have responded to his request as well as I could with my

limited time and space. Two hours "over the tube" would demonstrate more than volumes of print.

J. EDWARDS SMITH.

NOTE.—On my last visit to the Dunkirk Society, May, 1877, I showed, I believe, for the first time, the Nobert 19th band as an *opaque object*, with my Tolles' $\frac{1}{10}$ duplex, Beck's *vertical* illuminator being used. It is obvious that the pencils of light traversing that band were at least centrally disposed. J. E. S.

San Francisco Microscopical Society.

AN EVENING WITH THE MICROSCOPES.

The fifth annual reception of the San Francisco Microscopical Society was held on Thursday evening, May 24, at Mercantile Library Hall, and was largely attended by an appreciative and intellectual assemblage of ladies and gentlemen, who left the hall feeling that the efforts of the courteous exhibitors had culminated in an evening of pleasure and interest to them.

There is a latent feeling in the minds of all to reach out into the unknown, and, if possible, become informed of what is apparently mysterious; and while the microscope has become a necessity to the special or even general student of to-day, it is also one of those optical instruments that is the most fascinating to the general public. The before unseen world is penetrated by its searching powers, and a universe hitherto unknown to them is found teeming with life and wonders, while beauties of nature are unfolded in a manner that is at once convincing of the existence of a law that governs the little with the large—the infinitessimal as well as things of a magnitude appreciable without magnification.

At the reception on Thursday evening, which was, as usual, a gratuitous offering on the part of the Society to the intelligent curiosity of the acquaintances of the members, there was arranged a programme of three objects for each of the exhibitors to present, and most of the slides were selected from specialties cultivated by the members. On a number of tables arrayed about the hall were placed twenty-two fine instruments, most of them first-class stands, and as the audience moved from one

table to the other, the gentlemen in charge took occasion to explain the objects exhibited, and reply to the many questions propounded.

The President of the Society, Prof. Wm. Ashburner, was at the first table, with vegetable structure, of which, perhaps, the most interesting was a leaf of the insectiverous plant known as *Drosera Rotundifolia*, with its tentacles and other parts. Darwin's exhaustive researches into the habits of this plant have made it world-wide, and it was a fitting introduction to the vegetable tissues shown by Mr. C. W. Banks, which had been doubly stained for the purpose of better defining their structure. Other objects of a similar nature were exhibited by this gentleman, as opportunity offered, though most of the members found that their three objects, well explained, were all they could get through with to advantage.

Vegetable tissues, polarized, formed a beautiful series of objects, shown by Mr. X. Y. Clark; and the starch grains, redwood bark and raphides, took a new interest in the minds of all, as the polariscope added its efforts to the natural beauty of the most useful kingdom in nature, the vegetable. Mr. E. J. Wickson continued in vegetable structures, showing the relative position of the exogens and endogens, and supplemented by the anatomy of a leaf. The pollen of rose and hairs of deutzia scabra, by Mr. G. L. Murdock, and varieties of the cryptogamia, in the way of ferns, fungi and algæ, by Mr. J. Z. Davis, brought us in the natural sequence to some of the lower living forms, which were finely shown by Henry C. Hyde. Esq. The protococcus and diatoms, which were motile, were almost animal in their popular characteristics of locomotion, and it was only the positive assertions of the gentlemanly exhibitor that could convince some of the observers that there was not a mistake in their classification.

Mr. C. Mason Kinne selected for his exhibit the respiratory organs of insects, plants and shell-fish, for the purpose of comparing the methods in which different orders managed to breathe. He found that the stomata and ducts of the one, the spiracles and tracheæ of the other, and the ciliary action of the branchial plate of the third, were but texts from which he had to frame short discourses in explanation, and in reply to queries as numerous and varied as those who placed their eyes to the tubes.

Besides these there were many other specimens exhibited which we have not the space to describe.

Cogitating on the force and mechanical energy gathered together in the coal fields, which is the condensation, so to speak, of the sun's power, we felt like going over the whole list again, a list which embraced so many departments in the economy of nature; but the tired gentlemen who had presided at the table so well, were found to be packing things away, and we left with the rest who were fortunate enough to be invited, wishing the members of the Society could see the propriety of having their meetings oftener. The whole affair was a complete success, and those who participated may well feel a pride in what they have shown, and gratified that they have aided a little in popularizing science, trusting that the world may see that there is an evolution in mind as well as matter.

Fairmount (Philadelphia) Microscopical Society.

Dr. J. A. Thacker;

Dear Sir—The regular monthly meeting of the Fairmount Microscopical Society was held May 17th, 1877.

Among the interesting objects exhibited were fibres of rammo bark, from Japan, and rice paper from China; also a supposed slough from typhoid fever patient. It was curious on account of its size, it being about nine inches long, and a quarter of an inch wide. A scrap teased showed a fibrous mass. Specimens of a remarkably transparent Damar varnish were shown and commented upon.

A letter was read from the Belgian Microscopical Society, offering exchange of specimens; and publications were read.

The Secretary read an abstract from a habitat list of fungi, giving some thirty odd habitats. Among them were railroad iron, glass, leather, corks, etc.

Samples of eosine were distributed, and its use as a new staining medium explained.

Drs. Walsh and Baker were elected active members; and Prof. Farlow, of Harvard, Prof. Peck, of Albany, and Mr. J. B. Ellis, of Newfield, N. J., were elected corresponding members.

We are in receipt of the following card:—

London, June 12th, 1877.

Dear Sir:

The demand for our optical and other scientific instruments in America, during the past six years, has been so satisfactory and so steadily increasing, that we have determined to open a branch house in Philadelphia, in order more fully to meet the advancing demand, under the management of Mr. W. H. Walmsley, who has hitherto conducted our agency as a member of the firm of James W. Queen & Co.

In thus connecting ourselves more prominently and intimately with American business, we hope to be able to give our customers an opportunity of seeing what we can do in the superiority of our workmanship, and the moderation of our prices: two points essentially and equally necessary for success.

To our branch house we shall forward all novelties as soon as produced, and shall keep in stock thereat a full line of all our goods and specialties, including microscopes and accessories, with every description of preparations.

Yours, truly, R. & J. BECK.

The branch house in charge of Mr. Wm. H. Wamsley has been opened at 921 Chestnut st., Philadelphia.

Gleanings.

SAFE AND RAPID CURE FOR ANEURISM.—(*British Med. Journal*, Feb. 3, 1877).—Dr. Horace Dobell submits to surgeons a simple suggestion for the cure of aneurism. It is to stop the circulation above and below the tumor, remove the fluid contents of the latter by aspiration, and replace them by an injection of spermaceti or stearin. The latter are insoluble in blood, but solid at its temperature; fluid at a temperature low enough to allow of their being safely brought into contact with living tissues, and changes from liquid to solid with great rapidity; and are at the same time light, innocuous, and unirritating. Their rapid solidification removes any danger of active or passive clots being washed away when the blood is allowed again to flow, while the time for the operation

would be so short, that no harm would result to the other tissues on account of the arrested circulation.—*Detroit Med. Journal*

Health of Cities.—The public health of the following cities was not in such a satisfactory condition during March as it was in February, if we may judge by the death-rates; the inclement weather of March was probably one important factor in producing an increased mortality.

In New York the deaths were mostly caused by phthisis, pneumonia, and bronchitis; diphtheria and croup were more fatal than in February; scarlatina has steadily diminished since January.

In Philadelphia the chief causes of death were phthisis, pneumonia, bronchitis, diphtheria, small-pox, croup, typhoid fever, scarlatina,—all of them were more fatal than in February.

In Brooklyn the mortality from the seven chief zymotic diseases, was nearly the same as in February. Diphtheria and croup have increased considerably. Scarlatina is less. The relative order of prevalent diseases is as follows: phthisis, diphtheria (and croup), pneumonia, scarlatina, and bronchitis.

In Chicago, scarlatina heads the list, but is declining.

In Boston, scarlatina remains very near the low place in the list which it reached in February.

In Providence the death-rate for the month was only 16.3 per 1000 of population. The mortality was chiefly from diseases of the respiratory system. Diphtheria was also more fatal than in February.

In Massachusetts cities other than Boston, phthisis, diphtheria (and croup), and pneumonia were the chief causes of death. Scarlatina has subsided.—*Boston Med. Journal.*

Dilating the Cervix.—Dr Lombe Atthill, in his address to the British Medical Association, already quoted in this journal, condemns the very common operation of dilating the uterine canal in various forms of disease. He recommends the following rules on the subject:

1. Never to dilate the cervix uteri for the cure of dysmenorrhea or sterility depending on a narrow cervical canal or conical cervix.

2. Never to dilate in cases in which a large and dense intra-mural fibroid presses on or partially obliterates the cervical canal.

3. Never to use metallic dilators of any kind, but to choose for the purpose either sponge or sea-tangle tents, which expand slowly and gradually.

4. Never to continue the process of dilation for more than forty-eight hours. I prefer, in a few cases I have met with, in which, after the lapse of that time, the cervix was not sufficiently opened to suit the purpose I had in view, to postpone all operative interference for some weeks rather than risk the result by prolonging the dilating process.—*Pa. Med. Jour.*

The Production of Albuminuria.—In an article in the *Transactions* of the Medical Society of King's county, N. Y., Dr. W. H. Martin observes that the diseases which are now known to be attended by albuminuria are so numerous, and pathologically so distinct, that we are puzzled in the endeavor to make analogy and comparison useful in testing the causative influence of pregnancy. It is hard to believe, for instance, that the conditions under which albuminuria is produced by valvular disease of the heart on one hand, and by diphtheria on the other, are identical, or even similar. That scarlatinal poison, and that pregnancy both cause albuminuria is proved; but that both cause it by originating exactly the same kind of disturbance eludes demonstration. It is rather a "begging of the question" to assert that each produce changes in the blood, and that it is useless to seek beyond these wholly indeterminable changes for a mode of causation. It is easier to suppose that each disease or group of diseases (if they can be grouped etiologically or otherwise) has a peculiar power, and exerts it in a peculiar way, than it is to suppose the existence of some one essential condition to which all equally give rise; that is, one single and immediate cause of albuminuria.—*Med. and Surg. Reporter.*

How to Cook Rice.—A gentleman writing from Japan to the *American Grocer* is charmed with the method of cooking rice in that country. He says: "Only just enough cold water is poured on so as to prevent the rice from burning at the bottom of the pot, which has a close fitting

cover, and, with a moderate fire, the rice is steamed rather than boiled until it is nearly done; then the cover is taken off, the surplus steam and moisture allowed to escape, and the rice turns out a mass of snow-white kernels, each separate from the other, and as much superior to the usual soggy mass we usually get in the United States as a fine mealy potato is superior to the watersoaked article. I have seen something approaching this in our Southern States, but I do not think that even there they do it as skillfully as it is done here, and in the Northern States but very few persons understand how to cook rice properly. I am sure that if cooked as it is here the consumption of this wholesome and delicious cereal would largely increase in America.—*Pa. Med. Jour.*

NITRATE OF POTASSIUM IN SCARLET FEVER.—Dr. F. B. Eisen Bockius, of Chicago, recommends the use of nitrate of potassium in doses of one to five grains, repeated every second or third hour during the first day and night, and every third or fourth hour afterward. As a local application to the throat, he uses the following: Acidi carbolici, grs, x–xx; liquor ferri subsulph, min. x–xx; potassæ chloratis, ʒj; aquæ distil ℥j. M. Sig. Apply with a camel's hair pencil.

A DANGER TO BE AVOIDED. — A physician in Canada ordered *Hyd. Chlor.* in a prescription, which was an unpardonable blunder. The compounder put up Corrosive Sublimate, which was worse than a blunder. The patient, a lady, had a narrow escape, her life being saved by vomiting almost immediately on swallowing the poison. Again and again, while writing prescriptions containing that agent, the danger of such an error has presented to our mind. The rule should be religiously observed never to abbreviate the words, but always to write in full—*Hydratis chlorali*, otherwise to put it in plain English.

THE BLUE GLASS BUBBLE.—Of all the countless cures that have captivated the public mind from the beginning of human history, no one ever flashed into utter darkness more suddenly than the blue glass furor. But yesterday every newspaper was full of it. It was in everybody's mouth. In all directions men were carrying home little window sashes with blue glass panes. The parti-colored sashes might be seen in situ on the sunny side of numerous

dwellings. Merchants were importing blue glass, and manufacturers were bending their energies to its production. Its powers and its cures were marvelous. But to-day it is gone from sight,—almost from memory too, for the invalids whom it cured smile when it is spoken of, and treat it as a half-forgotten joke. People *might* learn a lesson from the blue glass bubble—but they *will not.* They will catch up the next phantasy which floats by, and they will surrender to it their judgment, and make fools of themselves in like manner.—*Pa. Med. Jour.*

The Alcohol Question.—The municipal authorities of the large towns in Sweden, and first in Gottenberg, gave the whole liquor trade into the hands of certain societies composed only of the most respectable citizens. These societies buy wholesale the best—that is to say unadulterated—liquor, and are in every way responsible for its retail. No intoxicating liquors can be sold except by venders whom they have chosen, and who follow regulations drawn up by the societies, and pay the latter a certain sum annually for their privilege. The regulations require that no intoxicating liquors are to be sold any evening after ten o'clock, or between five o'clock Saturday evening and nine Sunday morning. Great care is also taken to have food and such unintoxicating beverages as coffee and tea placed before the customers wherever brandy is sold. All the profits accruing to the societies which have control of the liquor trade, are devoted to public and charitable purposes and institutions.—*Philadelphia Medical Times.*

Commencement Exercises of the Cincinnati College of Medicine and Surgery for the Session of 1877.

The Commencement Exercises of the Spring and Summer Session of 1877 was held in the College Building, on George Street, Thursday evening, June 21st, commencing at 8 o'clock. Notwithstanding the sultriness of the weather, a very fair audience of ladies and gentlemen was present to witness the metamorphosis of some forty-six gentlemen into Doctors of Medicine, licensed to practice the healing art.

The Dean, Prof. Bramble, announced the opening of the exercises by prayer, by the Rev. James Y. Boice, pastor of the First Reformed Presbyterian Church of Cincinnati.

After prayer, the Rev. F. S. Hoyt, D. D., President of the Board of Trustees, proceeded to confer the degree of M. D. upon the gentlemen, who, having been in attendance upon the lectures of the College just closed, and having passed a successful examination, had been recommended by the Faculty to the Board for graduation. Previous to handing them their diplomas the Rev. Doctor proceeded to address the members of the graduating class in some very appropriate remarks, expressing the hope that they would keep in mind the high position of the profession they were about to enter, its responsibilities, etc., and that they would never fall short of their duties.

The degrees having been conferred, Prof. M. L. Amick proceeded to deliver the valedictory address, on the part of the Faculty, to the graduating class. We will print the address in a future issue, not having space for it in the present.

After the conclusion of the valedictory address, G. H. Picard, A. B., of Illinois, delivered an address in behalf of the graduating class. It was well written, and elicited much praise from all those who heard it.

At the close of the exercises, which were exceedingly pleasant and much enjoyed by all, the benediction was pronounced by the Rev. J. Y. Boice.

From the College the graduating class, faculty, and friends proceeded to the residence of Prof. Bramble, where they were all entertained very sumptuously with strawberries and cream, ice cream, cakes, etc.

The following are the names of the graduating class, titles of thesis, and states were residing:

BLACK, F. I.	*Ohio*	Diphtheria.
BAKER, J. I.	*Mich.*	Infantile Eclampsia.
BALPH, J. M.	*Pennsylvania*	Typhoid Fever.
BARLOW, C.	*Illinois*	Pernicious Fever.
BARNUM, W. E.	*Indiana*	Conduction of Normal Labor.
BOBBITT, J. H.	*Indiana*	Gynæcology.
BOGGS, R. T.	*Ohio*	Opium.
BREEDING, S. H.	*Kentucky*	Diphtheria.
BUSCH, P. T.	*Ohio*	Carbon Oxygen and their Compounds on Animal and Vegetable Life.

CAMPBELL, D. P	*N. Hampshire*	Acute Tuberculosis.
CARR, JAS. L	*Indiana*	Tubercle.
CONNER, J. C	*Indiana*	Blood Letting.
COX, A. P	*Pennsylvania*	Diphtheria.
CRAIG, S. A	*Pennsylvania*	Scarlatina.
DRYER, J. L., A. B	*California*	Malarial Causes.
DWIGGINS, M. F	*Ohio*	Pneumonitis.
GIBBON, H. B	*Ohio*	Ergota.
HAND, W. R	*Pennsylvania*	Typhoid Fever.
HEWETT, J. N	*Indiana*	Dysmenorrhea,
IKIRT, G. P	*Ohio*	Variola.
JENNER, A. B	*Ohio*	Opium.
JUDGE, J. F	*Ohio*	
KALLMERTON, F. J	*Indiana*	Menstruation.
KINNMAN, J. W	*Iowa*	Variola.
LEA, J. D	*Ohio*	Cholera Infantum.
LERCH, C. A	*Ohio*	Diphtheria.
LORING, D. J	*Indiana*	Chlorosis.
MANSBRIDGE, J. W	*Ohio*	Intermittent Fever.
MCCORMACK, W. F	*Pennsylvania*	Scarlet Fever.
MCMANNIS, A.	*Ohio*	Typhoid Fever.
METZLER, S. N	*Pennsylvania*	Typhoid Fever.
MINNICK, JNO. M.	*Indiana.*	Milk Sickness.
MORSE, jr., N. C	*Kentucky*	Physiology and Pathology of Animal Heat with Treatment of Abnormal Temperature.
ODER, E. E	*Ohio*	Sleep.
PICARD, G. H., A. B	*Illinois*	Chemism.
PRIEST, S. C	*Ohio.*	Permanganate of Potassa.
ROGERS, R. A	*Ohio*	Intermittent Fever.
SAVAGE, T. J	*Ohio*	Epidemic Cholera.
SELLERS, J. L	*Texas*	Typhoid Fever.
SILVEY, J. H	*West Virginia*	Scarlatina.
STEWART, C. H	*Kentucky,*	Pneumonia.
SWIGART, I. R	*Pennsylvania*	Anatomy.
STUNTZ, C. R	*Ohio*	
THARP, F. D	*Indiana*	Auscultation.
WALLACE, HUGH	*Ohio*	Habitual Constipation.
WEST, G. B	*Ohio*	Puerperal Eclampsia.

As a matter of some interest we append a list of the questions submitted by a number of the chairs on final examination to each member of the graduating class.

Questions by Chair of Surgery, Prof. D. D. BRAMBLE, M. D.

1. Describe Colles' fracture, how produced; give treatment.
2. Give causes producing fractures of shaft of femur; symptoms and treatment.
3. Name regular dislocations of hip; symptoms of each; means of reduction; also describe W. W. Reed's method of reduction.

4. What is hydrocele? Give varieties, diagnosis, treatment—palliative and radical.
5 What is complete retention of urine? Causes, treatment.
6. What is a wound? How classified by surgeons? How do they heal? What are the indications for treatment?
7. Name varieties of hemorrhage; how recognize each variety? Means of arresting hemorrhage; what agents would you particularly rely upon?
8. What is blenorrhagia, and what blenorrhea? Causes and treatment of each; are they local or constitutional affections?
9. What is hernia? How distinguish femoral from inguinal? Symptoms and treatment of strangulated hernia.
10. Define amputation. Name methods.

Questions by Chair of Diseases of Women, Prof. A. J. MILES, M. D.

1. Give the clinical history of a case of acute vaginitis.
2. Give the pathology of areolar hyperplasia of the uterus.
3. Give the causes and symptoms of inversion of the uterus.
4. Give the symptoms and treatment of chronic cervical endometritis.
5. Give the clinical history of a case of cancer of the cervix uteri.

DISEASES OF CHILDREN.

6. Give the symptoms and treatment of pertussis.
7. What is acquired hydrocephalus? Give the causes and diagnosis.
8. Give the symptoms and treatment of simple meningitis.
9. Give the pathology and treatment of pseudo-membranous laryngitis.
10. Differentiate between cholera infantum and enterocolitis in infants.

Questions by the Chair of Obstetrics, Prof. J. TRUSH, M. D.

1. Give the symptoms and signs of pregnancy usually present at eighteen and at twenty-eight weeks of gestation.

2. What constitutes normal labor?
3. Give the management of normal labors, with the several normal presentations.
4. Give the normal mechanism of labor, with vertex and face presentations.
5. Define the indications for the employment of the obstetrical forceps in parturition.
6. Give the treatment of hemorrhage in two cases of abortion with retained placenta, the abortion taking place respectively at twelve and at twenty-four weeks gestation.
7. Name the predisposing and exciting causes of rupture of the uterus in labor.
8. What conditions are liable to occasion morbid retention of the placenta in labor at term?
9. Give the managment of such morbidly retained placenta in labor at term.
10. How would you treat the several forms of *post-partum* hemorrhage?

Questions by Chair of Anatomy, Prof. M. L. Amick, M. D.

1. What is a cell?
2. Name the principal parts of a long bone.
3. Describe the coverings of the stomach.
4. Locate and describe surgical neck of the humerus.
5. Give the coverings, and describe the difference between inguinal and femoral hernia.
6. Name the splandinic cavities.
7. Describe the simplest form of a nervous system.
8. Describe the coverings of the brain.
9. Name the structures passing around the inner malleolus.
10. Name origin, and give the foramen of exit of the twelve pairs of cranial nerves.

Questions by Chair of Physiology, Prof. Wm. A. Rothacker, M. D.

1. In what fluids of the body is urea found? In what portion of the economy is it mainly formed? How much is excreted in twenty-four hours.
2. What is the normal temperature in man? How is this temperature maintained against excessive heat?

3. Give the mechanism of the opening and closure of the glottis.
4. What influence has respiration on the flow of blood in the arteries and veins, and in the flow of lymph in the lymph channels?
5. Is albuminose a solid or liquid? In what does it differ from albumen?
6. Draw a normal sphygmographic trace, and name its various divisions.
7. What causes the first sound of the heart? In what does the first sound differ from the second sound?
8. By what portion of the cord is sensation conducted to the brain?
9. What effects follow the division of the fifth nerve anterior to the Gasserian ganglion?
10. What is a vaso-motor nerve? What follows section of the vaso-motor nerves in any part of the body?

Questions by Chair of Principles and Practice of Medicine, Prof. J. A. THACKER, M. D.

1. Define fever.
2. What are zymotic diseases?
3. What are the stages of pneumonia?
4. What are the physical signs of the second stage of pneumonia?
5. What are the physical signs of the second stage of pleurisy?
6. What are the *characteristic* symptoms of typhoid fever?
7. What is peculiar in the range of temperature during the onset of typhoid fever?
8. Distinguish between cerebral vomiting and gastric vomiting.
9. Mention some of the points of distinction in cerebral inflammation and meningeal inflammation.
10. How does nature compensate for changes in the valves of the heart producing obstruction in the flow of blood?
11. What diseases are pericarditis and endocarditis usually secondary to?
12. Define aphasia.

Questions by Chair of Pathology, Prof. CHARLES REED, M. D.

1. What is pathology?
2. Give the classes of modified nutrition.
3. Describe the condition of the cells respectively in infiltration, degeneration, atrophy, and hypertrophy.
4. What is hyperplasia?
5. Define the term "malignant," and give the conditions of new growths that determine the degree of their malignancy.
6. Describe gangrene; name its forms, and give the conditions upon which each form depends.
7. Define necrosis.
8. Define inflammation, describing consecutively each stage, from its incipiency to its termination.
9. Define suppuration.
10. Describe an abscess, and give the mode of its formation.

Book Notices.

THE CURE OF RUPTURE, REDUCIBLE AND IRREDUCIBLE; ALSO OF VARICOCELE AND HYDROCELE, BY NEW METHODS. By GEORGE HEATON, M. D., Member Mass. Med. Society; Fellow of the Royal Chirurgical Society of London, etc. Arranged and edited by J. Henry Davenport, A. M., M. D. Boston: H. O. Houghton & Co. Cincinnati: R. Clarke & Co. 12 mo. pp. 195. 1877.

The work contains six chapters besides an appendix. There are treated Abdominal Hernia; Radical Cure of Reducible Hernia; Irreducible Hernia; Varicocele; Hydrocele; Permanent Cures.

The author lays it down as a cardinal principle in all operations for the cure of hernia, that any inflammation except of the mildest grade must be carefully avoided. If the surgeon, he says, cannot operate without producing the four cardinal principles of inflammation described by Celsus, viz., heat, pain, redness and swelling, he had much better let his patient alone, and not do harm, for such a result cannot do good.

His mode of producing a radical cure is what he terms *the method of tendinous irritateon.* He describes two of them, by either of which he claims it is possible to effect a cure, and he uses them indifferently.

We have no doubt the surgeon will obtain from the work many valuable hints in regard to the treatment of hernia. The affection is a very common one, and is attended with no little danger. Any contributions to the knowledgment of its management, and especially to the means of effecting a cure, will, undoubtedly, be received with favor.

TRANSACTICNS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Volume 1, for the year 1876. Boston: H. O. Houghton & Co. Cincinnati: R. Clarke & Co. 8 vo. pp. 387. 1877

By all gynecologists and physicians generally this volume will be regarded as a valuable acquisition to medical literature. It contains quite a number of lengthy and highly important papers by the most eminent specialists of this country and Europe in diseases of females. Among the contributors we find the names of Robert Barnes, J. Matthew Duncan, T. Gaillard Thomas, Wm. H. Byford, Rob't Battey, A. J. C. Skene, Fordyce Barker, T. A. Emmet, J. R. Chadwick, T. Parvin, Lawson Tait.

Our space will not permit to give the titles of the papers read, much less any outline of them. We can assure our subscribers that if they purchase the work they will make a valuable addition to their library, one which they will frequently have occasion to consult. The authors of the papers treat their subjects much more fully than they could be treated in a text-book, and bring them abreast with the knowledge of the day, setting forth, of course, the results of their own experiences and study.

NOTES ON THE EPIDEMIOLOGY OF OHIO. By THOMAS C. MINOR, M. D. Cincinnati: 8 vo. pp. 103.

We are in receipt of a copy of this interesting pamphlet by our fellow townsman, Dr. T. C. Minor. It includes a short study of the topography, and population, geology, hydrography, altitude, and climatology of the various counties in the state, together with an inquiry as to the local causes that seem to exert an influence on the different varieties of zymotici. The geographical distribution of the zymotic diseases of Ohio; mortality statistics of 1850, 1860, 1870, as evidenced by the U. S. census, are set forth; mortality statistics of Cincinnati, Dayton, and

Toledo, for the years 1872–3–4–5–6; historical notes on the past epidemics of the state, etc., etc., are given.

The work is quite an important one, and will undoubtedly be regarded as a standard authority for many years. It undoubtedly cost the Doctor a large amount of patient study and research. It has been reprinted from the *Lancet and Observer*, having been continued through quite a number of issues of that journal.

THE QUESTION OF REST FOR WOMEN DURING MENSTRUATION. By MARY PUTNAM JACOBI, M. D., Professor of Materia Medica in the Woman's Hospital, New York. The Boylston Prize Essay of Harvard University for 1876. Illustrated. 8vo. pp. 232. New York: G. P. Putnam's Sons. Cincinnati: R. Clarke & Co.

The learned and cultured lady, who is the author of this work, in treating the subject, "Do Women Require Mental and Bodily Rest During Menstruation?" discusses many topics of the highest interest to physicians. In her case a strong, active and cultivated mind has been most assiduously devoted to the study of the physiology and pathology of the sexual organs of her sex, with the result of widely extending the field of knowledge, and paving the way for a more intelligent treatment of diseases of women, as well as preventing them. We have not space to give an outline of the work, nor could we do it justice should we endeavor to do so. We hope that each one of our readers will secure a copy, and read and study it. We will make a single extract from page 228: "Among all the facts we have examined, there is but one group that might seem to justify the theory, that *mental* rest was imperative for women in menstruation, whatever might be the case with physical. We have seen that alterations of pressure exerted in the brain, by varying degrees of vascular tension, may cause the most extraordinary alterations in its functional activity and capacity for function; and a cardinal point in this essay has been the attempt to show that in women exist certain fixed alterations of vascular tension, over and above those common to the physiological processes of the two sexes. But; 1st. These alterations succeed each other so gradually, that the brain receives no shock from them. 2d. The rise in tension, which presumably should affect the brain, does *not* occur during the menstrual hemorrhage, which is the

single period covered by the question of the Committee. 3d. Granted that the brain is stimulated by increased vascular tension, it is certain that where any habit of susceptibility has once been established, it counts in the ordinary working of the organ. 4th. The reactions of the brain to alterations of blood pressure are proportionate not only to them, but to the degree of resistance of its own tissues. Our statistics show that 53 per cent. out of 263 women interrogated at hazard exhibited such a degree of resistance in their nerve tissues as to enable them to bear with impunity the increased vascular tension of the pre-menstrual week. It is equally certain, however, that the reverse holds in a large number of cases, though by no means in the 46 per cent. of our tables. It is when the nutrition, and hence the vital resistance of the nerve centres has been diminished, that the rise in tension irritates nerve elements; and all degrees of nervous erethism may be produced, from ill temper to insanity."

Editorial.

The Association of American Medical Colleges.—We are in receipt of a pamphlet giving a history of this organization; also its constitution, by-laws, articles of confederation, and list of members.

The object of the society is ostensibly the *advancement of medical education;* yet the requirements for graduation, as set forth in the third article, of the "articles of confederation," are of no higher standard than those that have been in force with all respectable schools of medicine for many years. In fact, they are precisely the same, except that in the third clause it is enacted that, "No two consecutive courses of instruction shall be held as satisfying the above requirements (two courses of lectures), unless the time between the beginning of the first course and the end of the second course is greater than fifteen months."

Colleges, which are members of the Association, are not permitted to hold but one graduating term a year. The *Cincinnati College of Medicine and Surgery*, in its Annual Announcement of 1876–77, has the following to say in regard to holding two terms yearly:

"Holding two terms of Lectures a year scarcely needs explanation, as the reason of it will suggest itself to the mind of any intelligent physician. Suffice it to say that the Trustees and Faculty, having instituted the experiment several years ago, are encouraged to continue the practice, finding it to be quite advantageous to students. Many students can attend a spring and summer course of lectures who could not conveniently attend a fall and winter term, and *vice versa.* Besides, the classes are made smaller by the division, and more attention is thus enabled to be given to individual students. Not a few physicians have experienced the difficulties of obtaining instruction in an overcrowded lecture room. Futhermore, the College has learned, by its experience in holding two sessions a year, that many students are induced to attend three terms who would otherwise attend but two. Not a few students, having finished the required attendance upon two sessions of lectures at the close of a fall and winter term, postpone offering themselves for graduation until after attendance upon the following spring and summer term, as they are only charged a matriculation fee for their attendance upon it; and the same as regards the spring and summer course—graduation is often deferred until attendance upon the following fall and winter session. Students will be induced to attend a third term, in addition to the three years' course of study under a preceptor, before offering themselves for graduation by the opportunity afforded them of doing so, and not delaying their graduation but five or six months, when in order to attend a third term, their graduation would be delayed another year, they would decline to do so."

While a number of respectable schools have joined the Association, which embraces considerably less than half of all the colleges, we do not find among the names of those who have signed the constitution and become members of what is termed the *permanent* organization, as entered upon at the late meeting at Chicago, the names of University of Pennsylvania, University of the City of New York, Medical Department of Harvard College, Bellevue Hospital Medical College, Long Island College Hospital, and a number of others of high standing. But there are enrolled the Indiana Medical College, Medical College of Fort Wayne, Woman's Medical College of

Chicago, Kansas City College of Pysicians and Surgeons, Starling Medical College, Detroit Medical College, Dr. Gaillard's Louisville Medical College, of Louisville, Dartmouth Medical College University of Vermont, etc. —23 in all.

At the convention held in Philadelphia, June, 1876, a delegate represented the University of Pennsylvania, but that institution did not become a member at the final organization.

THE WOMAN'S HOSPITAL IN 1874.—A reply to a printed circular of Drs. E. R. Peaslee, T. A. Emmet, and T. Gaillard Thomas, addressed "To the Medical Profession." "May 5th, 1877." By J. Marion Sims, M. D., Founder of the Woman's Hospital of the State of New York, and formerly Surgeon to the same.

"Doctor's quarrels, in whatever form, are always a disgrace to the profession; and when they take the shape of cards and pamphlets they become a lasting shame."

Dr. J. Marion Sims, as is well known, founded the Woman's Hospital of New York. If it had not been for his arduous labor in that direction, enlisting the co-operation of the wealthy, obtaining money from state and municipal government, that hospital would not have had an existence. He obtained its charter, procured its site, created its Board of Governors, its Board of Lady Managers, and its Medical Board. Yet he was obliged to leave his hospital through the machinations of the very medical men he brought in to share the honors of his labor. These professional associates were not only "invincible" in urging him on to assert their professional claims, and "invisible" in the hour of conflict, but after the conflict they treacherously wrested from him the fruits of his long and arduous labors.

It is astonishing the baseness to which men will condescend of whom we would have expected better things. But so it is. The human heart seems to be naturally depraved, and it seems as natural to commit sin as it is for the sparks to fly upward. Education, culture, and position fail oftentimes to bring about that upright, honorable course of conduct that one would expect. Not only has this been the case in New York, but in other cities. In Cincinnati we have known strenuous efforts to be made to rob men of the fruits of their labors of years; and this,

too, by individuals who *had been made* by those whom they sought to trample in the dirt, and appropriate to themselves the results of their toil.

In November, 1874, Dr. Sims was expelled, or compelled to resign his position as a member of the Medical Board of the Woman's Hospital. Drs. E. R. Peaslee, T. A. Emmet and T. Gaillard Thomas were his colleagues on this Board. While pretending to be his friends and supporters in a conflict in which he was engaged with the Board of Governors which he had brought into existence, as well as being their creator as a Medical Board, they were secretly opposing him, urging the Governors to accept his resignation which he had unadvisedly tendered, insisting that the best thing for the interests of the Hospital was to get him out of it, as he was a reckless operator, and was injuring the reputation of the Hospital.

On the 12th of May, at 10.30 A. M.; Dr. Sims was to sail for Europe. At a quarter to seven on the previous evening he received by mail a printed circular signed by Drs. Peaslee, Emmet and Thomas, giving a pretended account of his resignation as a member of the Medical Board, highly injurious to him, and exculpating themselves from all blame. This attack upon him was postponed until just on the eve of his departure, when they thought it would be impossible for him to tarry and expose them. But they were mistaken. Says Dr. Sims, "It did not require a second's thought for me to determine what to do. Disappointments and the loss of time and money are as naught compared with honor. And I have remained over for the purpose of vindicating myself." And the result is the pamphlet which we have before us, the title of which heads this article.

As Dr. Sims very properly states—"doctors' quarrels, in whatever form, are always a disgrace to the profession; and when they take the shape of cards and pamphlets they become a lasting disgrace." But when one is made the victim of treachery, and hunted down by slanderous circulars, resort must be had to means of uncovering and exposing those who would secretly stab him. Dr. Sims has done this, and done it well. He has taught his assailants a lesson which we hope they will take to heart, and let it open their eyes to the fact that dishonorable conduct, sooner or later, will redound to the injury of those who practice it.

THE

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Original Contributions.

Valedictory Address to the Graduating Class of the Cincinnati College of Medicine and Surgery, June 21st, 1877.

By Prof. M. L. AMICK, M. D.

Gentlemen of the Faculty of the Cincinnati College of Medicine and Surgery, Members of the Graduating Class,—For sixteen weeks we have had the pleasure of directing your attention to that most beautiful hymn which man can chant in honor of his Creator—ANATOMY. That marvelous organization, the science of which, of all others, excites the greatest curiosity.

If the mineralogist and the botanist are so eager,—the one to determine the nature of a stone, the other to ascertain the character of a flower; if the love of their particular science induces them to hazard their lives in dangerous voyages, in order to enrich it with a new species, what ought to be our ardor in pursuing the study of man, that masterpiece of creation, where wisdon and intelligence are combined?

Leaving the cold clammy body buried in a sleep, wearing death's perfect semblance, we turn to "man, a living temple." Plato called man a two-legged animal without feathers, and hence it was natural for Socrates to bring a cock, despoiled of all his feathers, into Plato's school, exclaiming, "Behold the man of Plato."

Dr. Franklin calls him a "tool-making animal;" Dr. Walker, a "cultivating animal;" Haylet, a "poetic animal." He has been described as a "laughing animal," a "cooking animal." A traveled Frenchman, being

asked to name one characteristic of all the nations he had visited, replied, "lazy." Southey says man is a "dupeable animal." Quacks in medicine, quacks in religion, and quacks in politics know this, and act upon that knowledge. Tailors and dry goods merchants, barbers and hair dressers, as a "dressing animal;" and the stripes of all shades, the silks and satins, embroideries and flounces, feathers and puffs, Princesse & Breton costumes, which are all the style now seem to verify.

> "Know then, thyself, presume not God to scan,
> The proper study of mankind is man."

The study of man is not necessarily the study of anatomy alone. Man is made manifest in history, philology, literature, art, politics, ethics and theology. Man is no inorganic machine—he is no Spectre of Brocken. He is a living temple, with a history which no runic legend, no Babylonish arrow-head, no Moabite stone, no Aladdin can cope.

Amid all the grand and wonderful creations of God, which astonish and enrapture the mind with their glory and grandeur, the creation of the human soul, pure and holy, rises in sublimity above them all. It was the breathing into man a living, conscious, intelligent soul that stamped him the master work of God. It was this high and royal birthright that gave him dominion over all the creatures of the world, for he walked the earth in the image of his creator. And it is the mind—the soul that makes man great now. Prompted by his genius within, he performs acts, and rears works, which may well astonish and enrapture with their beauty and magnificence while we gaze upon them.

But the works of man, grand and wonderful as they may be, do not, for a moment, equal the mind that conceived them. The beautiful statues that we observed at our Centennial Exposition, standing life-like before us, and almost breathing, are not, for a moment, to be compared with the mind of the sculptors that saw those statues in the rough block of marbles before the hand of genius chiseled them out. Which is the greatest, the grand old picture of the Last Supper, or the man who painted it; Murillo, or his paintings; Rispah, defending her sons' dead bodies, or the mind that conceived and boldly placed them on canvas; which is most to be admired, the electric wire which carries our thoughts around the earth with the speed

of lightning, or the man who conceived the wondrous idea; which should receive the greatest praise, the chloroform that produces the calm quiet sleep while the surgeon's knife severes the marrow and the bone, or the mind that wrought the idea from obscurity, and placed it in our hands. The stream bears us on, and our joys and griefs are alike left behind us.

> "When pain and anguish wring the brow.
> A ministering angel thou."

Which is the most wonderful, yonder world whirling through space, the telescope that brings it near to us, or the man who made the telescope, which enabled him to discover the planet, and whose genius measures its distance from the earth. He grasps the idea, and behold there issues forth a Corliss engine—a statue of liberty, a beautiful fountain. He dwells among the stars like a God. He weighs the mountains, takes up the isles as little things, penetrates the rocky laminal of the earth, and reads the history thereof. He catches the light and unfolds it into spectre of beauty, finding in each one of its glowing bars some secret of Nature's hidden magic. We may form a clearer idea of the dignity of man when we contemplate the power and nature of the soul, whose witnesses are the infinite and eternal. It soars to immensity, it travels back to an eternity passed, or anticipates an eternity to come. It glows with love or burns with lofty passion. Its spiritual history is the romance of creation before which the story of land or sea, of monsters or earthquakes grows time; and even in thought it stands in ashes of a cindered world exultant in a destiny that has just begun when worlds have ceased to be.

It is grander than the mountain, richer than the mine, brighter than the jewel, and more glorious when consecrated to its true end, than all the array of suns and stars. It is the crown of creative might, it is the jewel in the ring of the universe, it is the picture for which the wealth of Crœsus, the power of the Cæsars, and the splendor of empires can furnish no fitting frame. Yet with all these it seems like a jet set in clay. This "living temple," so dignified in its nature,—so enlarged in its desires,—so lofty in its aspirations,—and so endless in its existence,—has been placed in the body of man; and this body, so wonderfully framed, is mysteriously united to the soul, so as to become the instrument through

which the soul gains knowledge of an outside world. And the sympathy is so great between the body and the soul that what affects one affects the other.

The body fights continually against that which is injurious to its health. There are things which the stomach will not tolerate for a moment, but with violent and indignant wretchings casts them forth. So, too, the windpipe, if the least particle of food enters it, with instant struggle and throe it rejects the intruder.

When we consider the wonderful anatomy of man's body, and the constitution of the soul, no one can doubt that God designed him for his special service, to reflect his glory and image, to be a "living temple" in which the spirit of God might dwell; and when man came from under the hand of his Creator, perfect in his spiritual and physical nature, he was in the highest meaning of the term a "living temple," in which God dwelt; and even since the fall, since sin has polluted and desecrated this temple, there is that about the soul which still shows that it was designed for a noble use, for a high and better service. Like an ancient temple, which, though in ruins, has something of its former grandeur and greatness clinging to its mouldering walls. Though in ruins yet its restlessness, anxiety, unhappiness and seeming bondage, mark a consciousness of its once high origin and better nature.

A bird taken from its native forest and imprisoned will pine in its cage even though it be a gilded one. A freeman enslaved will feel degraded though bound with fetters of gold. So, too, the noble soul of man, bound down by the degrading and enslaving appetites of a corrupt and mortal body, cannot but be restless under this prostitution of nature, which partakes of that of angels. In this temple we see a desire for pure and unmixed truth.

I do not mean by this, that everybody tells the truth, for equivocation, prevarication, and falsehood seem to be characteristic of man; cheating and lying are too natural with fallen human nature. We know that there is a disposition in man to deal largely in superlatives; an extravagant manner of expression which smacks largely of falsehood. You will sometimes hear a young lady say, "Thought in my soul I should have died, the sermon was so long." She thought no such thing, or she would have wanted the sermon longer. "It blows suddenly

cold" you will hear a man say, "I like to have frozen to death," when he had no idea of freezing to death.

On decoration day a young lady suddenly opened a door to run and get into a street car. A shoe black was sitting on the stone step. "Dear me," said she, looking at the boy, "you like to have frightened me to death." I looked at her but discovered no sign whatever of death—but I did of ill nature and paint.

A few days ago a young lady, getting out of an Elm street car, stumbled a little. "Mercy on me," she said, "I came very near breaking my neck," and yet as she threw back her head and sauntered up the street shaking her tilter, her neck seemed to me as good as new. How many "like to kill themselves laughing," and "thought they would certainly melt, it was so hot," when they had no thought of melting. A cross mother said "She certainly would go crazy if the children did'nt make less noise." She had ought to have thought of this a few years sooner.

But after all there is a desire in the human heart for truth. There is something even in the heart of a liar that prompts him to desire and expect the truth from you. He may be false and unprincipled himself, and yet in his heart is a desire for unmixed truth: It is the desire to arrive at truth that prompts the researches of the historian, the calculation of the astronomer, the experiments of the chemist, the examinations of the anatomist, the tours of naturalist, and the studies of the religionist. Tell a child you will bring it a doll or a knife, and it will certainly believe you and expect the toy. Children believe every statement made. All persons are more confiding and less suspicious when they are young. They usually then take persons for what they profess to be, and believe what they say; it is only when they are older, when they have come in contact with men and women who, by their falsehoods, have destroyed the confidence once confided.

There is in this temple a feeling of admiration in beholding the great and noble. A noble act will attract the attention of the lowest and most degraded. A fireman ascending his ladder amid flame and smoke to rescue a child from a horrid death; the pilot and engineer standing firm at their posts amid the cracking, hissing flames of their burning vessel, which they are running ashore to save their passengers, are heroes, and their names become

the theme of romance and song. The greatness and mightiness of the heavens, the grandeur of the clouds, the vast blue ethereal sky far above and far below, the lofty mountain, the surging waves of the ocean, attract alike the attention of the simple and the wise. Is not this universal feeling of admiration excited in beholding the great, the magnificent, and noble, the voice of the soul longing to sing out in a living temple the praises of him who is the author of all greatness and goodness?

The flower blushing upon the foot-path, the rose blooming before the door of home, the vine trailing above the window, the basket hanging in the door attract out attention. Place a boquet, or a picture in your window, and every passer-by, from the schoolboy to the gray-haired sire, will stop and look at it admiringly.

Is not this a ray still shining from the temple wherein once dwelt him who is of "infinite beauty;" and, elevated to the spiritual, may not this feeling take in him who is to the mind,—"the beauty of truth;" to the conscience,—"the beauty of justice;" to the affections,—"the beauty of love;" to the soul,—"the beauty of holiness;" and to the whole consciousness of man,—"the total infinite beauty, the perfect and absolute object of every hungering faculty of man.

Man has aspirations and longings, desires and hopes, for a greater sphere. He aspires toward the infinite and eternal, the very conception of which is the mark of nature, to which no limit can be prescribed. Yet there are some persons who have so low an idea of what God intended them for, that they hardly seem to be, or even wish to be, men at all. They seem to be placed here as some men are sent to our legislature, just to fill up; they forget that they have heads, and hands, and feet. They forget that when God wanted sponges and oysters, he made them, and put one on a rock and the other in the mud. But when he made man, he did not make him to be a sponge or an oyster; he made him with feet, and hands, and heart, and head, and vital blood, and a place to use them; yet even among such there are times when they think of a higher life.

Man has naturally an idea of religion; that this is so is evident from the fact that no race of men has been found upon the globe without some kind of religion, by the practice of which they seek to reform their lives, and

thereby win the favor of the Supreme Being. This religious idea implies and teaches the existance of right and wrong. It also implies that man is dissatisfied with the evil he sees around him, and of which he himself is guilty, and consequently seeks a way of escape from it. Is not this idea of religion, which is innate in the soul, a beautiful pillar left standing by time amid the ruins of a noble temple. These and other like considerations make it clear that man in his constitution and nature of both body and soul, was designed for a high and noble sphere of action; and who will dare say what this may be? who will dare say to what anyone, even the humblest, may attain; what virtues may not crystallize into a crown for his brow, what riches of reverence and love and unbought honor shall not embalm his memory.

By means of this temple the name of Washington was heard; the star of Napoleon arose; a Columbus landed on our shores; an Alaric thundered at the gates of imperial Rome; an Anthony sprung up who thrice offered Cæsar the crown; a Demosthenes whose voice startled the Athenian senate from their chairs; a Gen. Grant the lion of Great Britan. Did God make man capable of becoming a king with the wisdom of Solomon; a nobleman with the grace and virtue of a Raleigh; a Jesuist with the intellectual acumen of Sir Matthew Hale; a scholar with the learning of Sir Isaac Newton; a surgeon with the learning and boldness of George E. Blackman, when he only meant that he should drag the muck rake and gather straw? Has he endowed him with affections and aspirations which soar to heaven, when he only meant that he should scratch in the dust and pick rags?

Can we behold a poor miner's son becoming a Martin Luther; a lad emerging from a shepherd's hut among the Alps becoming the former Zwingle; a workman in an armorers' shop Melancthon the great theologian; a shoemaker in Northhampton translating the Bible into the language of Hindoostan; a last maker a Morrison; a farm servant becoming an Andrew Fuller; a herdsman a William Jay; a drunken sailor a John Newton; a weaver a Livingstone; a poor, honest rail splitter an Abraham Lincoln; a village minister's son becoming a Sir Astley Cooper; an army officer's son becoming the greatest celebrated naturalist of modern times in Cuvier? Can we see all this and not conclude that man was designed for a high and noble sphere of

action? We see, then, that man has in him the elements of a living, glowing temple; and if man is not what he can or ought to be, it is because he degrades and desecrates the temple within him.

The indulgence of passion desecrates this temple. Some men ruin themselves by the indulgence of appetite, and justify their course by saying: God gave him these appetites, and he only used what God gave him. How foolish such reasoning. God gave you limbs and the power of locomotion, would you, therefore, justify a man in running and jumping off of the Suspension bridge into the Ohio river, by saying that he was only using the legs God gave him?

Because we have appetites and passions is no reason for abusing them; our appetites and passions are to be controlled, used, not killed.

It is the indulgence of appetites and passions which ruin men, not the possession of them. Anger destroys this temple, and the greatest courage is needed to control it. We often laugh at the folly of a drunken man, yet anger is just as foolish. Anger often punishes the angry man, like stones pulled down in mischief from an old ruin fall upon the man that pulled them down. Remember the old proverb, "Ashes fly back in the face of him who throws them."

Ill nature and fretfulness sometimes creep into this temple and mar its beauty. There are men and women that wear away fast and die because they have worried life completely out; nothing goes right, husband or wife, children or servant, or teacher or sweetheart, or lesson, or sermon, or speech;—they are pricked and stung at every motion they make, and wonder why it is that others are permitted to float along so peacefully—and they never suffered to have a moment's peace in their lives. Why, if they were in paradise, carrying their bad temper with them, they would fret at the good angels and the climate, and all that surrounded them.

There is nothing can make a home or house so thoroughly uncomfortable as a whining, fretful, ill natured wife, unless it be a whining, fretful, ill natured husband. There is some excuse for a woman's fretfulness who has from six to eight little steam engines in the shape of children running and begging and screaming about her, and never still from daylight till dark. But no excuse for man.

Avarice also desecrates, and should be buried out of the temple. Like a sponge, it takes up all in itself, and gives nothing back unless you squeeze it.

A covetous man, as such, is anything else than a living temple. He lives in continual suspicion, fear and trust. If his door creaks, then out he cries murder; he is afraid of every thing and every person; afraid of enemies, lest they should hurt him; afraid of war; afraid of peace; afraid of rich, afraid of poor. Though rich himself, he is afraid of want; that he will die a beggar, which makes him lay up still, and dare not use what he has; and were it not that he had to lay out money for a rope, he would be tempted to hang himself forthwith, and save expenses.

Valerius makes mention of a man who, in a famine, sold a mouse for two hundred pence, and famished himself. There are a great many such now, and I never see a man or woman of this kind but I think of a stingy boy I once went to school with, who came to the schoolhouse one morning with his pockets full of apples, and eating one. I asked him for one. He was sorry he could not give me one—he had only five others; and he wanted one to save, and one to keep, and one to put away, and one to have, and one to eat after playtime.

Geologists say they sometimes find toads sealed up in the rocks—they crept in during the formation periods, and deposits closed the orifice through which they entered. There they remained in long darkness and toad stupidity. till some chance blast or stroke set them free. And there are many such miserly men sealed up in mountains of gold in the same way. If, in the midst of some convolu tion in the community, one of these mountains is overturned, something crawls out into life which they call man.

Pride is out of place in this temple. Pride, like some contagious disease, breaks out all over a man—it will not be stinted to any particular part or place. It expresses itself sometimes in the eye, then in the foot, then it takes posession of the tongue; it appropriates every man's hands to its use, cloaks itself in all kinds of garments, from the calico gown of the peasant girl to the ermined robe of the empress. It takes all kinds of shapes, sometimes of a bonnet as large as a baby's wagon, then reduced to a couple of straws and a feather tied together with a ribbon, and put high upon the back of the head, and called a hat.

It assumes all attitudes; now the slow, quiet gait of the orthodox Quaker, then the loud air of a village lawyer; now it moves in the erect and stately carriage of our mothers forty years ago, then in the strange contortions and hideous motions of the Greecian bend.

Pride, laziness, intemperance, and various other vices tend to degrade this temple.

Akin to all these and equally destructive is that absolute devotion to fashion, which now characterize men and women. There is no more powerful force at work in society among men and women than fashion Public opinion no longer controls fashion, but fashion it. Public opinion might justly condemn the size and shape of a bonnet, but fashion will place it on the head of every woman in America. Public opinion and good sense might condemn the cut of a pair of pants or boots, but fashion will stretch them on the leg or foot of every young fellow in the land in spite of public opinion or comfort. The Empress has only to change a red ribbon to green, and all the world becomes verdant. Fashion has decreed that the *bon ton* color must be golden, and men and women in our cities are actually locking themselves up for weeks to dye their hair and whiskers a golden hue. And they appear on the street, the man with his moustache waxed, and pointing stiff and straight from each side of his nose like a crab's feelers. His pants tight to suffocation, his boots to absolute misery, his coat short to ridiculousness, and by his side is a fancy article, called woman, with skirt on skirt, double and single of every color, twisting and falling in all directions, scolloped and pointed, and rounded and gored, and suddenly terminating in a strange hump on the back, giving her in shape the appearance of an interrogation point, while the zigzag folds of her dress remind one of the old woman's question to her minister, as she took up the jug to pour out some molasses in his plate. "Domini," she said, "will you have it crincle crancle, or all in a bunch.".

Some men, instead of becoming temples, towering towards heaven, get only high enough to mount some hobby, and ride to ruin and wretchedness.

One will take to music, and thinks human life is only a song. He drums and fiddles, he lives between base and tenor, runs from quaver to semi-quaver, but never ascending to anything higher than concert pitch, and then goes to seed with no one to sing his song.

Another gets astride the horrid trotting and bony horse of politics; and the first thing he knows he is hard aground on a bar in salt river.

But the symptoms of dissolution which we meet everywhere are only evidences that the temple has been desecrated. Weakness stares us in the face, the pale countenance, the glassy eye, the wrinkled brow, affirms that something is wrong. Disease in all its manifold forms announces decay. Uneasiness and pain show that physical evil is at work. The house of the soul shakes under the force of the tempest, the rafters rot and give way; the roof sinks in and the building falls to the ground. Through these appetites sin has entered the inner temple, and the soul, like a palace, is all in ruins. Some of the pillars are fallen and broken down, while others are standing erect. The once beautiful arches have given away, and the stones lie scattered all around, the bass reliefs are defaced and full of holes, the decorated chambers are dingy, and the walls here and there have fallen in; the ceiling is damp, and the water dripping through; the lamps are broken upon the floor, the altar overturned, and light and love are vanished. The sacred incense, which sent rolling up in clouds its rich perfumes, is exchanged for a poisonous vapor. Shall this temple lie forever in ruins, and like a mouldering column, remain only a sad and dismal monument of former grandeur? No, but with the mind, and the beautiful harmonies of our bodies still left us, we may yet wear a noble crown.

Thousands of years ago, huge piles were built in the rich plains of Egypt. They rose in grandeur and might, the wonder of the world, and they stand to day gloomy and silent monuments of ancient glory. But the Pyramids stand only as the temples of the dead, they have seen dark clouds gather and sweep over the rich plains below, and the magnificence and glory of Egypt pass away, her cities ruined, her palaces crumbled, and her splendor vanished forever, and still they stand, cold, gloomy temples of the dead, in which the mould of centuries mingles with the dust of the departed, and the clammy noisesome warns the traveler to hasten his exit from this dark abode. 3,000 years ago the same sun that shone above the Pyramids fell in golden splendor upon another temple; and as the East blushed with a roseate purple, and the morning stars were melting into its depths, while the darkness was fleeing;

and at the moment the sun appeared over the battlemented heights of Moriah, a thousand silver trumpets blown from the walls of this temple, shaking the very foundations of the city with their mighty voices; the housetops everywhere were alive with worshipers, Jerusalem started, as one man, from its slumbers, and an hundred thousand men of Israel stood waiting a second trumpet, and every house is moved; then the murmur of voices, like the roll of the surf along the beach, join in the morning song of praise, while the walls of the temple like a cliff echo it back. Rising with the adoring hymn, a pillar of smoke ascends from the midst of the temple and spreads itself above the court like a canopy; this is a temple of the living,—a "living temple" in which glad voices are heard, and from which holy influences went forth—a temple in which the ever living God delighted to enter and abide. And it is still a living temple. Such a temple I would have you build, young men,—a living, burnished temple. I would have you adorn the body with the beauty of Symmetrical Manhood, the mind with the beauty of Intelligence; the soul with the beauty of Religion; and the whole crowned with heavenly beauty. A living glowing temple lit up with the light of truth and love, from whose altars shall issue influences and blessings, which shall make human life more beautiful and the human heart happier; you go forth as God's viceroys on earth, and may each of you be a temple filled with the sweet incense of thanksgiving, and ever bright with the presence of God and the angels, a temple which shall live and shine, and burn in endless glory, when the Pyramids have mouldered to atoms and the temples of earth are in ruins.

Antiseptic Dressing for Contused and Lacerated Wounds and Burns.—A writer in the New York *Medical Record* advises first to wash the surface to be dressed in carbolized water, follow this with free use of cosmoline (a hydro-carbonaceous derivation from petroleum), to which salicylic acid has been added in the proportion of ten grains to the ounce. We have tested this in cases of burns, and found that the healing was not accompanied by suppuration.

The Contagium-Particles of the Eruptive Contagious Fevers, their Nature and Mode of Action.

By I. E. Atkinson, M. D.

The old belief in the existence of a contagium vivum, as essential in the causation and pathology of many diseases, has persisted with varying fortune; and attaching to itself from time to time some truth, but much error and absurdity, has, by sufferance, held a place in the history of morbid processes. Within a few years, however, a new impulse has been imparted to the theory by the careful investigations of many observers; and at the present moment science is ready to accept, as proven, the dependence of many diseases, for their very existence, upon certain microscopic living particles. This accomplished fact, however, has not resulted in a harmony of opinion as to the nature of these particles, and authorities disagree in discussing their animal or vegetable origin, and the modes in which they produce their characteristic results.

The most prevalent and popular teaching is that "disease germs" are fungi, probably "produced by the transformation of the contents of the reproductive cells of the parasitic fungi inhabiting the higher plants" (Burdon-Sanderson, Report Med. Off. Priv. Council, 1869, p. 229; Bien. Retr. N. Syd. Soc., 1869–70, p. 45). They are described by Dr. Burdon-Sanderson as consisting of "microzymes," which are "spheroidal, transparent, of gelatinous consistence, of density equal to that of the animal fluids in which they float, mainly, but not exclusively composed of albuminous matter" (12th Report Med. Officer to Privy Council; Syd. Soc. Bien. Retrospect, 1869–79, p. 451).

Another view of the origin of these particles is that they are derived from the protoplasm of the human system, or that of some of the higher vertebrates; that they are degraded from their original condition of normal germinal matter, and when introduced, for the first time, into the human organization, possess the power of almost indefinite multiplication. Says Dr. Lionel S. Beale, "It seems to me probable that the subtle poison originated and multiplied in man's own body, or in the bodies of some of the animals domesticated by man. I consider that it has been derived by uninterrupted descent from

the bioplasm or living matter of an organism which, at an antecedent period, may have been perfectly healthy." (Disease Germs, 1872, Preface.) Chauveau (Gaz. Heb., 1871, viii. 638; N. Sydenham Soc. Bien. Retrospect, 1871–72, p. 35), says, "The specific poison of an infectious disease resides in its cell elements;" and further on, that the poisonous affections are to be distinguished from the septic, by the fact that their intimate cause "is to be found only in the granular protoplasm of the new formations."

To that theory which ascribes to those particles, to which the eruptive fevers are due, a vegetable origin, there are many and grave objections. First among these may be reckoned the fact that, while it is granted that these fungus-cells, microzymes, bacteria, or by whatsoever name they may be called, are to be found in the blood and other parts of the organisms of persons affected with the specific fevers, they are also to be fouud under many other conditions within the body in disease, and are to be discovered even under circumstances of perfect health. It is true that under such circumstances they do not manifest themselves in any great numbers; but it is claimed by the opponents of the vegetable germ theory that the diseased processes, by altering the usual conditions of the fluids and solids of the body, smooth the way by which these organisms may multiply, and that they increase solely because the healthy condition of the body, in which they were unable to develop, having been interfered with, a new condition occurs which is favorable to their development. Dr. Beale uses the following language in referring to this matter: "The fungi cannot be regarded as the CAUSE of death, any more than the vultures which devour the carcass of a dead man can be looked upon as the cause of his death." (Disease Germs, 1872, p. 79.)

Again, it is asserted that just in proportion as the bacteria multiply in fluids withdrawn from an infected body, so does the power of these fluids, for communicating the various diseases, decrease; that the vaccine virus, for example, loses its contagious properties as the vegetable germs increase; that the terrible effects produced by the absorption of substances from the dead body are much more apt to follow the earlier after death the contamination occurs; this danger of contamination decreasing as decomposition advances; that these fungi, were they the

true disease-germs, occupying, as they do, parts of every organism, would not allow the escape of any one from their dire effects; finally, that they absolutely fail to account for the immunity from subsequent attacks, afforded the individual once affected. Unless these objections can be met, and as yet they have not been, we are justified in rejecting so much of the "vegetable germ theory of disease" as refers to the eruptive fevers.

On the other hand, the theory that a disease-germ is "probably a particle of living matter derived by direct descent from the living matter of man's own organism" (Beale, Disease Germs, 1872, p. 95) fulfills many requirements not satisfactorily accounted for by the vegetable germ theory. There are offered, however, based upon the former, two explanations of the mode in which the peculiar and especial effects upon the organism are produced. The one preferred by Dr. Beale is that "the contagious particle or particles having gained access to the fluids of the unaffected organism, may absorb nutrient matter, grow and multiply, and give rise to a progeny very closely resembling the originals." (Disease Germs, 1872, p. 189.) The other explanation, as stated by Dr. Beale, but rejected by him, is that it might be maintained "that the contagious material, actually passing into certain portions of the living germinal matter of the organism, excited in these new actions and caused them to divide and subdivide very actively, and communicated to them the same properties which the original particle possessed, somewhat in the manner in which the wonderful powers existing in connection with the germinal matter of the spermatozoon, are communicated to that of the ovum, and affect to some extent every one of the multitudes of living particles resulting from its division."

Before objecting to the first of these explanations, it may be well to mention, as concisely as possible, the grounds upon which it is based, Dr. Beale being taken as the most able expositor of the theory.

While admitting the occasional presence, in all human organisms, both healthy and morbid, of vegetable germs, and declaring his ability to identify and describe them, Dr. Beale recognizes, in addition, many exceedingly minute particles which especially abound in the infectious diseases, but are also present in all inflammatory affections, which require the highest powers of the microscope to

detect, and which he describes as being identical, in all appreciable characters, with the ordinary protoplasm, or, as he terms it, "bioplasm" of the body. These bodies, he insists, are radically distinct from the vegetable germs which may exist contemporaneously with them. Moreover, these bodies have been proven, from experiments practised by both himself and Chauveau, to contain within themselves the poisonous elements of, at least, such diseases as vaccinia, glanders, sheep-pox, and cattle-plague. These particles, Dr. Beale declares, as already stated, to be directly derived from the ordinary "bioplasm," but degraded in their life, and not able to attain the higher development inherent in the normal "bioplasm" of the body, and asserts that Dr. Burdon-Sanderson and others, in giving such descriptions and delineations as they have done of "microzymes," etc., have been guilty of incorrect observation.

According to the view he adopts, Dr. Beale considers that to this growing and multiplying of the degraded bioplasm are to be ascribed all the subsequent changes which are distinctive of the contagious fevers; that in consequence of this rapid and extensive multiplication there occurs the greater or less rise in the temperature of the body, and that, also, from the same cause, the capillaries of the body become overcrowded with this germinal matter, and that when death results it is due to the obstruction and plugging up of the capillaries. Finally, in attempting to account for the protection afforded the individual from subsequent invasions of the same contagious disease, he suggests "that from the particles of bioplasm which induced the first attack of the disease, bioplasts are produced, which continue to give rise to others. As long as this production of new germs by descent proceeds, the bioplasts must take pabulum, which other disease-germs in their absence might appropriate." He continues: "Upon the whole, then, I incline to the view that 'protection' is due to the presence of bioplasts in the blood, which have directly descended from those introduced. These, growing and multiplying in the blood, take up the pabulum suitable for the nutrition of disease-germs, and the growth and multiplication of the latter and of germs, allied to them in character, is prevented, should any such gain access to the blood." (Disease Germs, 1872, p. 231.)

This, then, is the theory of infection as supported by

Dr. Beale, and it is certainly to be preferred to that of the vegetable germ; and so much of it as refers the origin of the contagious particles to the protoplasm of man's own body, seems to be entitled to credence. It is, however, but little more satisfactory, when applied to the explanation of the behavior of the organism under the influence of the infectious particles of the eruptive fevers, and of the immunity from subsequent attacks of a disease, conferred upon an individual who has previously suffered from it.

Thus, while it is readily conceivable that when death follows the onset of either of the contagious eruptive fevers, swiftly and surely, it does so by means of a plugging of the capillaries by degraded but rapidly proliferated protoplasm, we may still hesitate to accept a theory that can give us no more satisfactory account of the various degrees of severity assumed by a given specific fever in different organisms; and that leaves us utterly without guidance in contemplating the different modes of manifestation of the various eruptive fevers. If the contagious particle produced its effects upon the organism, simply by growing within it and multiplying at its expense, not by adding anything to the living part of man's body, but, as it were, by eating it up, where is the necessity for the various contagious particles performing their offices in so many different ways? why should the contagium, say of small-pox, differ in its effects so entirely from the contagium of scarlatina or typhoid fever?

Still further must we hesitate to accept such a theory of "protection" as is offered by Dr. Beale; for we cannot conceive why the contagious particle, having appropriated from the organism all but a minute quantity of the "pabulum" suitable for its maintenance, should suddenly stop in its headlong career, leaving undestroyed, for the time, just enough to supply and to continue to supply a small number of these particles with just enough material for their support, and that of their descendants, during the remainder of the natural life of the person carrying them.

Believing, however, that although wrong in his conclusions regarding the manner in which disease-germs act, in inducing and extending the eruptive fevers, I am satisfied that Dr. Beale is right in regarding them as particles of "bioplasm" degraded from the property of

working out the offices of normal "bioplasm," but gaining, in this functional degradation, increased reproductivness and tenacity of life. Beyond this point, however, I believe that more definite and reliable results will be attained by investigating the other theory. rejected by Dr. Beale, which is, that the contagious particles act by combining with the normal protoplasmic particles, and that they cause them to divide and subdivide, and communicate to them such properties as they themselves possess; this union being supposed to closely resemble what occurs in that of ordinary reproductive cells. At the same time, it must be confessed that with this theory, even, perfectly satisfactory results are not to be attained. Nevertheless, it has appeared to me, that by this method, more than by any other, we may hope to place our knowledge of the action of these contagious particles upon a sound philosophical basis. To do this, aided by the investigations of other writers, is the main object of this paper.

In the first place, assuming that it is through the germinal matter or protoplasm of the body that the specific effects of the diseases under consideration are produced, it will be profitable to ascertain some of its properties. This protoplasm, in the blood, is the leucocyte and its descendants; in the tissues, it is probable that these leucocytes supply all the material for nutrition. Stricker says: "It is even conceivable that the colorless corpuscles are destined for the regeneration of all the tissues of the animal body," (Human and Comparative Histology, N. Syd. Soc. Trans. vol. i. p. 38.) Of the tissues especially involved in the discussion of our subject, the epithelium and the connective tissue of the corium, the derivation from the leucocyte, is more than probable; thus in Stricker's Manual of Hum. and Comp. Histology, N. Syden. Soc. Ed. vol. i p. 54, A. Rollet writes, that "the derivation of the migrating cells of the connective tissue from the blood has been certainly demonstrated in some particular instances, and rendered highly probable for all." Rindfleisch says "the migration of connective tissue corpuscles has been directly observed by v. Recklinghausen, in the cornea; and this observation gives color to the view that the renewal of the epithelial cell is operated by a migration of their youngest elements from the connective tissue." (Path. Hist. vol. i. p. 106, N. Syden. Soc. Ed.) Finally, Besiadecki and Pagenstecher specifically

state that the epithelial cell is a descendant of the white blood corpuscle.

The colorless blood corpuscle, then, may be considered a specially elaborated protoplasm, capable of becoming so modified as to assume the higher special development of whatever tissue of the body with which it may be brought into contact; that is to say, in order to become a kindred part of the tissue to which it is distributed, the embryonic cell must undergo a sort of infection by that tissue.

In considering the leucocyte, it must not be forgotten that in its normal living condition, when observed with the aid of high magnifying powers, it is a very different substance from the dead spheroid usually seen in the field of a microscope of moderate amplification. When alive and placed in a medium suitable for the continuation of its life, it may be seen exercising those qualities that have secured to it the appellation "amœboid;" that is, precisely, as does the amœba, so does this cell, present an irregular and every varying outline, wandering about by its own exertions, by means of the little processes which it protrudes, which may again be withdrawn, or as little knobs or gemmules, become detached and begin a life independent of the parent mass, and grow into full sized leucocytes, to be again and again divided and subdivided. In the healthy condition this budding will always result in the production of a living cell exactly resembling its progenitor, and prepared for further elaboration in the tissues. Should, however, from some unknowable cause, the vitality of this cell be impaired, certain contrary results would inevitably occur.

That which is known as the pus-cell, if we might believe Dr. Beale, is one of the results of what he terms the degradation of bioplasm. According to him, while pus is undoubtedly descended from the ordinary protoplasm, and is in physical characteristics not to be distinguished from it, it differs widely in its life history. It, says he, "may go on multiplying for any length of time, producing successive generations of pus-bioplasts, which exhibit remarkable vital properties, although they cannot form tissue, nor produce tissue-forming bioplasts of any kind whatever." (Disease Germs, 1872, p. 114.) This idea of the degradation of pus-cells has, however, by no means been accepted by writers, some of whom assert that the

pus-corpuscle is the leucocyte, the white blood corpuscle, pure and simple (Cohnheim, Hayem, *et al.*); others, following the teaching of Virchow, and fortified by the investigations of Stricker, Cohnheim, and others, declare the pus-cells arise from the proliferation of the cells of the connective tissue and epithelium, as well as from the leucocyte. The latter of these processes, however, implies the degeneration of a more highly developed protoplasm to the condition of that of a simpler structure; and although it might be claimed that this degeneration was still within the limits of normal protoplasm, as far as our knowledge of its physical character extends, the mere fact of the possibility of any degeneration at all justifies us in assuming that the normal limit may be exceeded, particularly since there appears to be a common consent that the elements of the substance recognized as pus are incapable of organization or higher development. "Degradation in power is commonly associated with increased rate of growth;" and in suppuration the "essential feature is a tendency towards over-production, towards exuberance of growth, whereby a colossal number of young cells are generated in a relatively brief period of time." (Rindfleish, Path. Hist. N. Sydenham Soc. Trans. vol. i. p. 120.)

(To be continued.

Death of Dr. Charles A. Jourdan, a Dentist of this city, from the Effects of Chloroform.

By S. P. CUTLER, M. D.

The death of Dr. Jourdan, from chloroform administered by Dr. Henning, assisted by Drs. Ess, Cutler and Albans, while having an eye extirpated by Dr. Voorheis, creating quite a sensation in the secular press, it is but due the profession and community that a history should be given for statistical and scientific purposes.

Dr. Jourdan's left eye received a traumatic injury five months ago, causing great suffering and loss of sight, ending in glaucoma, with intra-ocular hyperæmia. To relieve the latter symptom oridictomy was performed a week ago, with only partial relief; in consequence, extirpation was decided upon.

At half past four o'clock P. M., on the above day, the

patient was placed upon the operating table, and chloroform administered in the usual way on a napkin, which soon brought on complete insensibility. The eye was speedily removed, when the breath and pulse suddenly ceased, and all efforts to resuscitate were unavailing. He never breathed after the first alarming symptoms were noticed. The quantity of chloroform did not exceed three-fourths of an ounce.

During the inhalation, the pulse increased in frequency, ranging from 100 or more beats, diminishing in force and volume up to final cessation. The breathing was not noticed so closely, though slow and regular. The stomach was empty, no food having been taken after breakfast, which was very light.

All the usual methods for inflating the lungs were resorted to without effect, such as pulling at the arms, turning the body in various positions, blowing into the windpipe with rubber tube, concussions over the chest and abdomen, and dashes of cold water. There being no other restoratives at hand, our means were exhausted.

An attempt to raise up the body being objected to, it was abandoned, which is to be regretted, from the fact that the appearance of the face and neck clearly indicated congestion of the brain.

He never drew a breath after the first alarming symptoms were noticed, and only made two gasping efforts without any air entering the lungs at all.

Some thought there was pulse after the breathing ceased.

The operation was attended with little loss of blood, not exceeding one ounce.

Autopsy, forty-eight hours after death, by Dr. Noll. Present—Drs. Nutall, Wise, Henning, Rogers, Jones, Voorheis, Cutler, and Albans.

On opening the cranium, the large sinuses were found distended with dark liquid blood.

The brain was carefully removed, and thoroughly examined throughout, without finding any evidence of organic disease of any kind.

The thorax was opened by removing the breast bone, the lungs examined, and found to be thoroughly congested with very dark blood, except the thin margins, which presented a natural appearance.

On removing the heart, all the cavities, the aorta, vena

cava, pulmonary arteries and veins, were all distended with dark liquid blood.

The heart being critically examined, gave no evidence of any organic disease or derangement; the valves were perfect; the muscular walls sound, and no fat about it; the pericardium contained the usual quantity of fluid only.

The stomach and liver were not removed, but examined sufficiently to show them to be in a healthy condition.

The examination extended no further.

There was no blood coagulum at all; the blood remained permanently liquid.

The body having been kept on ice, there were no signs of decomposition.

What could have caused death so suddenly in this case? The blood remaining liquid and venous throughout the entire vital centres, and no doubt the entire body, could we not infer a poisoned condition of that fluid?

May not the vapor have taken the place of oxygen in the blood corpuscles, in consequence, carrying vapor to all the tissues of the body instead, thereby narcotizing the entire system, and causing the congestions spoken of?

From the venous appearance of the entire blood, it is but reasonable to conclude that very little oxygen, if any, entered the blood during the administration of the drug, and the congestions may have been taking place from the commencement.

The congestion on the brain would disturb respiration, but not the action of the heart, only to a limited extent, that organ depending only indirectly on the brain: the heart in cases of hanging, decapitation, drowning and other instances, sometimes beats some time after the brain and lungs cease to act.

In almost all ordinary deaths, the left side of the heart and aorta are found comparatively empty.

In the above case, it would appear that this vital organ was completely paralyzed and overcome by congestion, as much so as either of the other two vital centres, a question of time only being uncertain.

In taking a retrospective view of the case, the writer would recommend the raising up of the body in similar cases, and, if respiration did not at once return, to blow air into the wind-pipe while in the erect position, as it is quite useless to try to inflate the lungs while the subject is lying on the back, or any horizontal position.

Raising the body up would allow the abdominal viscera to fall, and the diaphragm with it, and facilitate the return of blood from the head by the aid of gravity.

Still, all of these measures may have availed nothing in the above case.

The writer has been informed of four cases, three from chloroform, and one from ether, in this city, where breathing stopped, that were resuscitated at once by raislng up, without any other means being used.

In the above unfortunate case, all the three vital organs seemed to be overpowered by accumulations of dark liquid, poisoned blood,—coma, asphyxia and syncope—all appeared to be represented in the case.

Dr. Jourdan was 47 years old, a heavy set man, medium height, well formed for strength and durability, constitution every way sound; his usual weight was about 200 pounds, though at the time of death did not exceed 165 pounds—having been reduced by dieting and medication; habits temperate.

In cases where the circulation continues for some minutes after respiration ceases, the entire blood would become more or less venous throughout the body, as no carbonic acid could escape from the blood or lungs after respiration ceases, though this supposed venous condition of the blood could not, of itself, poison and overpower all the vital organs so quickly as suddenly to destroy life.

In all cases of anæsthetization, the air, in the 600 millions of air vesicles, is necessarily more or less replaced by the vapor used; in consequence, but little air enters the blood or air vesicles, which would increase the venous condition of the blood.

Memphis, Tenn., April 7th, 1877.

Selections.

The Discoverers of Anæsthesia.

In order that a condition of insensibility to pain might be produced upon human beings and animals, when under the surgeon's knife, it was not necessary, in 1842, that any new chemical agents should be discovered; it was only necessary that the extraordinary capabilities of a

well-known agent should be better understood. Ether, a highly volatile, inflammable liquid, prepared from alcohol by the action of sulphuric acid, had been known to chemists and physicians for many years, and it was in common use in medicine and the arts. It had long been known that when the vapor of this liquid was inhaled, it produced exhilaration and certain abnormal conditions of an agreeable nature to most people.

When a student of medicine in 1842, it was often inhaled by us and our companion students, with the object of obtaining its intoxicating or exhilirating effects. The sublime and beneficient discovery of the condition of anæsthesia was not far from us a third of a century ago, as in some of our experiments with ether we were brought to the verge of complete insensibility more than once. The wish has often been expressed that we had been led along a little further, and had thus made the grand discovery of anæsthesia. But when we consider the lives of sorrow and disappointment led by the four men who claim to have done more than we did, and the sad end to which most of them have come, we are not sorry that the ether was taken from our lips before prolonged insensibility came upon us. We have no reason to complain of our condition in life, although life's pathway has not been strewn altogether with roses. It is pretty certain that had we inhaled ether, in 1842, so as to have been thrown into the condition of complete anæsthesia, and had we possessed the power of inductive reasoning so as to have perceived the vast importance of such abnormal conditions, we should have trod a pathway of thorns during life, and the end must have been miserable. What has happened to the four claimants of the discovery would doubless have happened to five or more.

The unhappy lives led by the four claimants have not been due to ingratitude on the part of the millions who have been blessed by the discovery, but rather to contentions, disputations, and disappointments on the part of the claimants themselves. The claims have been so conflicting and uncertain that the world, eager to confer honor and happiness upon the true discoverer, has been compelled to be held in painful suspense for more than a third of a century, not knowing upon whom to bestow its honors and its gifts. Under the circumstances, the same state would exist were the number of claimants doubled

or quadrupled. The fact is, the discovery of anæsthesia must be regarded as largely due to accident, and there is mixed up with it a considerable amount of empiricism. Dr. Jackson's suggestion to Morton to use ether, to obtain effects like those produced by the inhalation of nitrous oxide was the accidental suggestion of one who wished to get rid of a troublesome inquirer. He knew no more of the anæsthetic properties of ether at the time the suggestion was made, than a thousand other men familiar with the agent. Morton, not knowing the force or value of Jackson's suggestions, pushed the inhalation to a point which would have filled Jackson with alarm had he known what was occurring. The two men were necessary to produce by accident and empiricism results which neither understood, nor dared to make unsupported and alone. Wells, of Connecticut, did produce the conditions of anæsthesia by the use of nitrous oxide, before Jackson's suggestion or Morton's reckless adventures, but he failed to understand, explain, or make known what he had accomplished.

Well's anæsthesia with nitrous oxide was on the 11th of December, 1844.

Morton's anæsthesia with ether was on the 30th of September, 1846.

The claimants involved in the above experiments, Wells, Jackson, and Morton, are well known, and volumes have been written for and against their claims. Less has been known of the fourth claimant, Dr. Crawford W. Long, of Athens, Georgia. From testimony recently produced, it does appear that Dr. Long has better claims to be honored as the discoverer of anæsthesia than either of the others. The proofs that he did produce the condition as early as March 30, 1842, appear to be satisfactory and conclusive. Dr. J. Marion Sims, who has recently written a pamphlet setting forth the facts regarding Dr. Long's experiments, presents his claims with an array of evidence which is irresistible. Dr. Long is still living, and in poverty, in Georgia, having lost his all in the civil war. He is represented as being worked to death to obtain his daily bread; he is old and feeble. The fate of Wells, Morton, and Jackson is sad indeed. Poor Morton, worn out with disappointment and grief, became insane, and so injured himself in an asylum as to cause his death. Wells became insane, and committed suicide in New York in 1848.

Jackson, so long known as Boston's distinguished chemist, is now in an insane asylum, hopelessly incurable. What a sad, pitiable record is this!

Dr. Long alone remains (of the four who have contended for the honors of the discovery of anæsthesia) in the possession of his reason, and he is destitute, overworked, disheartened. And now, what can we do, what shall we do, in justice to all? Dr. Sims' suggestion is a good one. Let the whole medical profession, North, South, East, West, unite in asking Congress at its next session to appropriate the sum of four hundred thousand dollars to be divided equally among the families of Wells, Morton, Jackson, and Long.

The discovery of anæsthesia is the greatest boon yet conferred upon man, and it is an American discovery. Let us all join in one united effort to aid those who have suffered so much in connection with this discovery.

Treatment of Intussusception by Abdominal Section.

In an article on this subject Prof. H. B. Sands embodies the history of a case in which the operation of laparotomy proved successful. The patient was an infant, six months ago, and was seen twelve hours after the symptoms began. She was then in great pain, and in a condition approaching collapse. There were vomiting and severe tenesmus, which was attended by the escape of bloody mucus from the rectum. The evacuations contained no fæces. On palpation an elonged tumor could be felt, extending from the left iliac to the left hypochondriac region. On rectal examination the invaginated intestine was at once discovered, reaching down nearly to the anus, and filling the rectum completely. By conjoined manipulation, the concontinuity of the rectal with the abdominal tumor could be distinctly appreciated. Several attempts were made to effect reduction by pushing up the rectal tumor with the finger, by inflating the intestine, and by the injection of warm water. These measures caused the abdominal tumor to disappear, so that it could no longer be discovered by palpation, but an examination by conjoined manipulation convined the Professor that a certain portion of the intestine was yet unreduced. The abdomen was then opened by an incision two inches in length,

below the umbilicus, and after some delay a tumor was found in the right iliac fossa, which proved to be the intussuscepted mass. On withdrawing it from the abdomen, it was found to be an intussusception of the cæcum and terminal portion of the ileum into the commencement of the ascending colon. On account of the rigidity and swelling of the intestinal coats, which were drank colored and ecchymotic, the disinvagination was difficult. It was effected mainly by pulling the outer or ensheathing layer of the intestine downward, and by squeezing the lower end of the intussuscepted gut. Considerable force had to be used. The wound was closed by five silver sutures. The pain, vomiting, tenesmus, and discharge of bloody mucus ceased immediately after the operation, and the bowels moved naturally on the second day, the subsequent recovery was complete.

After briefly describing the varieties and symptoms of intussusception, and analyzing the statistical tables of the operations of abdominal section that have been performed for its cure, Prof. Sands closes his paper with the following deductions:

1. The success which has already been obtained in the operation of abdominal section for intussusception is sufficient to justify its repetition, when other means have proved unavailing.

2. There is reason to believe that in intussusception, as in strangulated hernia, the great danger lies in delay, and that, in acute cases, the operation, to be successful, must be performed at a very early period, probably within twenty-four hours from the invasion of the disease.

3. In chronic cases the operation is indicated when other means have failed, and there is reason to think that the invagination is still reducible.

4. It has been proved by the case herewith related that the operation may succeed in acute cases, if performed during the first eighteen hours.

5. The greater fatality of the operation in infants has been shown to be rather aparent than real, and it remains to be proved whether in them, the performance of abdominal section for intussusception may not yield gratifying results.

6. In infancy the operation is more justifiable, because during that period, there is hardly any tendency toward spontaneous recovery after sloughing of the intestine.—*New York Medical Journal*, June, 1877.

"Metallo-therapie," or the Effect of Little Pieces of Metal Applied to the Skin in Hemi-anæsthesia.

In the year 1850, M. Burcq, a physician of Paris, addressed to the Academy of Sciences, a paper on the "influence of certain metals [applied to the surface] on paralysis of sensation." He claimed that certain individuals suffering with hemi-anæsthesia were relieved by the application of little plates of gold, while others were relieved by copper applied in the same way, and others yet by zinc. These statements of Dr. Burcq were treated with silent contempt by some, and severely criticised by others. He, however, continued to urge this discovery—for such it has proved to be—with all the energy of profound conviction; but it was not until the latter part of the year 1876 that he was able to bring his views to a test. At that time M. Charcot, the distinguished physician of the Salpetriere, consented to test the matter in this hospital; and on the 13th of January of the present year, he made a report to the Societe de Biologie in which he sustained all the claims which M. Burcq had set up more than *twenty-six* years before. Since this first report of M. Charcot, a number of observers have, at different times, reported their experience in the matter.

On April 14th, a committee, consisting of MM. Charcot, Luys, Dumontpallier, Landolt, Gelle and Regnard made a report to the Societe de Biologie, of which the following is the substance:

If, in a patient suffering from hysterical hemi-anæsthesia, little pieces of gold, of copper or of zinc be applied to the skin of the affected region, the patient feels a creeping sensation, and, at the same time, a sensation of heat. After some moments there is a return of sensation, an elevation of temperature, and an increase in muscular power. In the neighborhood of the point of application of the metal, there may be some uncomfortable sensations. The special senses are influenced in a similar manner. The committee have found a decided increase in the activity of vision and a diminution of the deafness on the affected side. These remarkable phenomena are not produced in all patients by the same metal; some are sensitive to gold, some to copper, and others to zinc.

It is very highly probable, also, that this action of the metals is due to electric currents which are established on the surface of the skin. M. Regnard has found that a current of the same strength as that produced by the metal, which is "active" in a given case, will produce the same effect as the application of the metal itself.

The same phenomena are observed in hemi-anæsthesia of cerebral origin, and strange to say, they are then made *more prominent* than in hysterical hemi-anæsthesia.

In the course of their experiments, the commitee observed a fact of great physiological interest. Just in proportion as there was an *increase* in the sensation (whether special or general) and in muscular power on the *diseased* side, was there a *diminution* of all these at corresponding points on the *sound* side. There was indeed, an actual *transfer* of sensibility. The committee make no difference with respect to the remarkable phenomena just mentioned between hemi-anæsthesia of cerebral origin and that due to hysteria; but it has since been found that this transfer of sensibility only *occurs in hysterical hemi-anæsthesia*, and is never observed in that which is of cerebral origin.

MM. Landolt and Julmont drew especial attention to the following points in a case which they report in *Le Progres Medical* for the 19th of May, (1), The return of general and special sensation, where no other treatment was used except the application of pieces of metal to the surface of tlie affected skin and mucous membranes, and this in a case of hemi-anæsthesia of cerebral origin which had existed without any variation for twelve years.

(2) The return of sensation to the whole of the affected side, although the metal was only applied to a very small surface.

(3) The persistence of sensation which, at the of three months, had undergone no diminution.

(4) The simultaneous improvement in the hemi-chorea which accompanied the anæsthesia.

They state as points of difference in hysterical hemi-anæsthesia, the production of anæsthesia at corresponding points on the sound side and the temporary character of the improvement in sensation.

It is difficult, if not impossible, to explain the mechanism by which sensation is restored when the anæsthesia is of cerebral origin. M. Charcot supposes that a few

only of the sensory fibres undergo a solution of continuity, while the others are thrown into a condition of torpor, from which they are aroused by the application of the metal. It is impossible to conceive, however, how a condition of "torpor," which had continued without any change for twelve years, could be relieved in a few moments in the manner described.

The Action of Salicylic Acid and Salicylate of Soda when Given Internally.

Fr. Riegel, in the *Berliner Klin. Wochenschrift*, reports the results he has obtained with salicylic acid and salicylate of soda in 100 cases, most of which were typhoid fever. He could not form a definite opinion as to the action of those drugs on the course and duration of febrile affections. He states that, in health, a dose which does not exceed 5 grammes (75 grains) produces no appreciable diminution of temperature. The unpleasant symptoms after salicylic acid, were vomiting, roaring in the ears with deafness, headache and giddiness. There were never any symptoms of collapse. Sweats, varying in amount, were frequently observed.

Riegel's investigations were made with especial reference to the elucidation of two points: (1), whether the temperature would be reduced by salicylic acid, and if so, how far; and (2) the amount of lowering of temperature as compared with quinine. The measurements of temperature were made every hour or every two hours; the dose of the medicine was from 4 to 6 grammes. In typhoid fever there was a fall of two or three degrees in the temperature which lasted from 12 to 18 hours or even longer. In those cases where baths were used at the same time with the salicylic acid, they (the baths) had to be repeated only once or twice in twenty-four hours; while in those cases where the acid was not given the baths frequently had to be repeated every two hours.

The duration of the fever was not influenced by the medicine; relapses occurred in about one-third of the cases, but *these* were usually of short duration when the acid was used. In phthisis, the action of salicylic acid was much more marked than quinine usually is.

According to Buss, the dose of salicylic acid must be twice as great as that of quinine to produce the same antipyretic effect. The investigations of Riegel show that salicylic acid produces a more decided and rapid depression of temperature than quinine, but the effect of the latter was more lasting in typhoid fever. In phthisis, however, the effect of salicylic acid lasted longer than that of quinine. The dose of the acid was 4 grammes; that of quinine 2 grammes. Riegel states, furthermore, that another advantage of the acid is that it can be given for a long time in these large doses, while quinine soon has to be suspended on account of its unpleasant effects.

His experience with salicylate of soda has not been so great as that with the acid, but he has come to the conclusion that it has as great an antipyretic effect, and is free from the irritating properties of the acid. It has the further advantage over the latter of being very soluble in water.

Schroder, in Petersburg, has recently treated 160 cases of typhoid fever with salicylic acid and salicylate of soda; has come to conclusions almost directly at variance with those of Riegel and the majority of writers on the subject. He says the antipyretic action of the preparation is doubtful—that there are frequently ulcerations in the mouth, nose, stomach and upper part of the intestines. In doses of 20 grains, symptoms of collapse frequently occur; the pulse being very weak and rapid. The death rate in the 160 cases treated with the acid and the soda salt was 19.4; while of 211 cases treated by the "expectant" method and with baths, the death rate was 14.7. He considered the greater death rate in the former case due to the paralyzing action of the drugs on the heart.

In a discussion on the same subject in the *Versammlung deutscher Naturforscher und derzte in Hamburg* a short time since, which was opened by Dr. Steffen with a report of 30 cases in which the remedies had been used upon children in his own hospital practice, the speakers agreed as to their great antipyretic balm. Dr. Jacobi, of New York, took part in the discussion, and mentioned the case of a child, 13 years old, whose temperature, for a week, ranged from 104° to 104.9°, and in whom large doses of quinine and six or eight cold baths a day produced no effect, but whose temperature was very promptly lowered by the acid.

The Regulation of Prostitution.

This subject has again and again been discussed in medical journals, medical societies, and legislative assemblies. It is one of great interest, of vital importance; and there is much to be said in regard to it. There are those who, regarding prostitution a vice that will necessarily have an existence, and cannot be suppressed, consider it is the part of wisdom to endeavor to *control* it, and limit as much as possible the horrible diseases which spring from it. On the contrary, there are others who think that no compromise can be made with vice no more than with crime; and that whenever met with the penalties of the law must be brought to bear with reference to exterminating it—that it would be a crime *per se* to treat it as a necessary evil.

Dr. A. S. Cressler, of Wilkesbarre, Pa., when recently a member of the Legislature of Pennsylvania, introduced into that body a bill for the decrease of a social evil, and supported it by a speech, which we have thought would be of interest to our readers. Dr. Cressler is a subscriber of the News, but we are indebted to Dr. C. S. Muscroft, of this city, for a copy of the speech.—Ed. Med. News.

In presenting a bill of this character to this honorable body for its consideration, the question naturally arises, "Is this a subject worthy of examination?" It is a well-known fact that all great moral questions of a reformatory character are not only difficult, but very slow of solution.

The feelings and the conscience of the people must not only be aroused in reference to the matter, but time must be given to educate them, and to persuade them of their duty, in reference to the application of the correct remedy.

The social evil is a plant of mature growth, wide spread, deep rooted, existing from the time of the prophet Moses.

Co-eval with society, it stains the earliest mythological records.

According to the book of Moses, prostitution must have existed in the eighteenth century before Christ.

Furthermore, Moses endeavored with marked zeal to check the progress of disease among both sexes, and we are of the opinion that the diseases mentioned in the fifteenth chapter of Leviticus, were syphilitic in their nature.

Moses did much toward purifying the Jews, but when he had done this he connived at the intercourse of the young men with foreign prostitutes.

He took an Ethiopian concubine to himself, and Syrian women—Moabites, Midianites and other neighbors of the Jews, many of them young and lovely, but with debauched and vicious principles—set up as prostitutes in the land of Israel.

For many years, until the time of Solomon, they were excluded from Jerusalem and the large cities, and, combining their trade with that of a peddler, lived in the groves and highways, in booths and tents.

So long as their practices violated no law of nature, the prudent legislator pursued a tolerant policy.

Before long, however, abominable rites in honor of Meloch and Baal were established by these strange women.

Against these enormities the wrath of Moses and his successors was aroused on hygienic, as well as moral and religious grounds, and death-like penalties were affixed to the observance of these rites.

And Moses himself, warned by the frightful progress of disease among the male Jews, struck at its roots by exterminating every female Midianite in the land except the virgins.

It is apparent, notwithstanding the severe ordinances of the Jewish legislators, that prostitues were a recognized class, laboring under no hopeless ban.

Jephtha, the son of a prostitute, became none the less chief of Israel. Joshua's spies slept openly in the house of the harlot Rahab.

Sampson chooses the residence of a harlot at Gaza to be his home, and also made a fatal acquaintance with another, Delilah; and even Solomon did not disdain to hear the rival wranglings of a pair of harlots, and to adjucate between them.

Prostitution continued to be practised generally and openly until the destruction of the Jewish nation, as we learn by the prophets of the Bible.

It may be a question whether it ever assumed more revoltingly public forms in any other country.

The Babylonian conquest must have changed the parts, without altering the performance.

Ctesias, quoted by Athenius, says: "At Babylon the Jewish maidens, with large, expressive eyes, voluptuous

mouth, slender and graceful figure, with well developed bust, peopled the houses of prostitution and ministered to the lust of the nobles."

By reference to the ordinances of Solon, it is said that Draco affixed the penalty of death to rape, seduction and adultery.

Solon, while softening the rigors of the Draconian code, by law formally establishing houses of prostitution at Athens, and filled them with female slaves, bought with the public money, and bound by law to satisfy the demands of all who visited them. They were, in fact, public servants, and their wretched gains were a legitimate source of revenue to the State.

After the Persian wars, the subject of Athenian prostitution is revealed in a clearer light, when laws were enacted for their regulation; and if any one will take the trouble to examine the history of the past, he will say that this subject is indeed worthy of examination.

Hitherto, reticence has been the policy. This position has been held too long, for it is false in principle and injurious in tendency.

The day has arrived when the shroud must be removed; when the public safety imperiously demands an investigation into the matter; when those who regard it as a small wrong may see it in its real proportions, and when those who have looked upon it as unmanageable be alike undeceived.

Few care to know the secret springs from which prostitution emanates.

Few are anxious to know how wide the stream extends. Few have any desire to know the distress and devastation it causes.

An accomplished lady, recently deceased, said well, when she wrote: "To such grievances as society cannot readily cure, it usually forbids utterance on pain of its scorn, this scorn being only a sort of tinsled cloak to its deformed weakness."

In 1843, more than thirty years ago, William Logan, author of the Moral Statistics of Glasgow, published a pamphlet, entitled "An Exposition of Female Prostitution, its Causes, Extent and Remedy." This paper, at the time and since, has been the subject of much consideration, and has elicited a great deal of praise. This pamphlet was endorsed by the Rev. Dr. William Anderson, of Glasgow, and by Richard Cobden, member of Parliament.

Sir Thomas Clarkson, the well known advocate of negro emancipation, thus speaks of it: "I am too blind to read your book myself. It lays open a scene of misery and vice which is most appalling and which ought to be better known, that people may take an interest in its suppression. It is a crying evil. How it is to be remedied is an important question. Yet I think Parliament can do something in the way of legislation toward checking the evil."

In May, 1843, the Right Hon. C. P. Villiers, member of Parliament, endorsed the book, and in January, 1845, Douglass Jerrold addressed the following note to Mr. Logan:

"I have already read your valuable and earnest pamphlet. The picture drawn is terrible, but its exhibition must do great good. I trust our legislators will examine the subject."

The venerable James Sigston, for more than thirty years a member of the Leeds Guardian society for fallen women, endorsed the document; and in May, 1843, the Governor of Mill Bank Penitentiary, wrote as follows: "I acknowledge the receipt of your book; I agree with you in desiring a remedy for this wide spreading and desolating evil."

Any grave proposal of a radical reform in this department of public morals would be encountered, to a certainty, with mockery, prejudice, selfishness, sophistry, and corrupt hostility in various shapes. I do not say this to discourage effort, for I sincerely trust that the effort—if not to suppress, at least to mitigate the vice—may prove successful.

Second. The next question that presents itself, and one that we should properly ask, is, What is the necessity for investigating this subject? The subject of prostitution, though a delicate and difficult one, is, nevertheless, of paramount importance to every intelligent friend of the human family, and has been far too much neglected by the Christian moralist.

Rev. Dr. Wardlaw, in his lectures on female prostitution, delivered and published by special request in Glasgow, in 1842, observes: "The subject is one of great delicacy and difficulty. The latter arises in part from the former, as the difficulty is almost insurmountable of keeping these subjects from the minds of the youth. The question comes to be one of surpassing consequence, whether it is to be

brought before them by the friends of vice or the friends of virtue, whether invested with all their tempting fascinations or stripped of their allurements and in their true character of moral loathsomeness and wretchedness and damning tendencies?"

Henry Ward Beecher, in a series of lectures, said: "So inveterate is the prejudice against introducing into the pulpit the subject of licentiousness, that ministers of the gospel, knowing the vice to be dangerous and frequent, have yet, by silence almost complete, manifested their submission to the popular taste."

Another difficulty exists in the criminal fastidiousness of the community upon this subject. It is a delicacy of exterior, of etiquette, of show, of rules; not of thought; not of pure imagination; not of the crystal current of the heart. Criminal fastidiousness is the Pharisee's sepulchre, clean, white, beautiful without, "full of dead men's bones within;" the Pharisee's platter; the Pharisee's cup; yea, the very Pharisee himself.

Delicacy is a spring which God has sunken in the rocks which the winter never freezes, the summer never heats, and sends its quiet waters with music down the flowery hillside. We must not be too fastidious—too delicate, when we are called upon to consider the public good.

Silverpen, one of our most popular and useful female writers, in an article published in 1846, "On Protection to Women," thus refers to the subject: "That the difficult question has been fairly broached, shows that moral courage is advancing in progress with freedom of public opinion. Now that the public mind shows itself sufficiently advanced, there is no reason that this question, as well as any other of social amelioration, should not be discussed usefully, thoughtfully, generally, and this without one line or one opinion irreverent to true purity.

"May not laws be enacted for those fallen ones? Cannot Magdalenes exist without being in jails, or conventicles, or badged by the degrading, pauperized condition of clipped gowns, or close cropped hair? To elevate, we must sympathize in the spirit of the Nazarene, and women can show this spirit more than men."

Dr. William Tate, Surgeon to the Edinburg Lock Hospital, in 1847, said: "Among the various questions which at present agitate the public mind, there are none more momentous or of more thrilling interest than that of pros-

titution. Whether the evil is viewed in reference to its effects upon the unfortunate females themselves, or to its injurious influence upon society on account of disease, it is one well worthy of considering. Hitherto this view of the case has been entirely overlooked, even by the religious part of the community, or at least treated with indifference. Why should this be so?

"Let those who have never personally known the confidential outpourings of woman's heart smile at this question. Let those who have never seen her on a bed of sickness, racked and tormented by the most loathsome and painful of all diseases, sneer at it.

"Let those who never witnessed her agony while the arrows of death were penetrating her inmost soul, or those who have never seen her so overwhelmed with a sense of the enormity of her guilt as to despair even of the mercy of God—let them, I say, who have never witnessed her in any of these conditions, but who judge of her character and deserts only from her profession, answer if they will. I have seen her in every stage of her career—from the day of her first appearance on the street until the hour when I have closed her eyes in death. And I am able to assert that her condition deserves the consideration of those who make the laws."

Dr. John Campbell, in the *British Banner*, of August, 1848, says: "There is far too much delicacy on this subject. The morality of the nation is still lamentably low. It is a question with which the Christian ministry is bound to deal; from this duty it should not be kept by false considerations of propriety. It is a question which, next to the pulpit, concerns the press, but that press, for the most part, has shrunk from its full and faithful discharge of duty."

The *Quarterly Review*, of September, 1848, says: "It is time to burst through the veil of that artificial bashfulness which has injured the growth while it has affected the features of genuine purity. Society has suffered enough from that spurious modesty which allows fearful forms of vice to corrupt it rather than hint at their existence."

The Westminster and foreign *Quarterly Review*, of July, 1850, says: "There are some questions so painful and perplexing that statesmen, moralists, and philanthropists shrink from them by common consent. Of all the

social problems which philosophy has to deal with, the darkest, the knottiest, the saddest is prostitution. Statesmen see the mighty evil lying on the main pathway of the world, and with a groan of pity and despair pass by on the other side.

"We are aware that mischief is risked by bringing the subject prominently before the public eye; we are aware it is a matter on which it is not easy to speak openly; we are aware that we shall expose ourselves to ridicule from the vulgar and light minded; we are aware we may meet much dishonest representation from those who recklessly echo any popular cry.

"We have weighed all these objections, and we have concluded that the end we have in view, and the chance of good we may effect, and the suffering we may mitigate warrant us in disregarding them.

"We think that such considerations have already too long withheld serious and benevolent men and statesmen from facing one of the sorest evils that the sun now shines upon.

"Our divines, our philanthopists, our missionaries and our sisters of charity do not shrink from entering in person the most loathsome abodes of vice and misery. Why then should our statesmen hesitate to give the subject some consideration?

"The best and purest of our race do not feel themselves repelled from or tarnished by the darkest haunts of actual guilt and horror, when pain is to be assuaged and disease to be mitigated."

The Rev. Dr. Guthrie, in his well known volumn, "The City, its Sins and Sorrows," says: "Some of us are about to make a new effort for the reclamation of fallen women, and the mitigation of their condition.

"By the wolf that wastes our folds I had seen one and another of the lambs plucked from the flock.

"I had seen the fairest flowers in the garden plucked and cast forth as vilest weeds. I had seen the fall of a daughter make gray, in a single night, a mother's head, and turn a father's heart into stone, and I thought men would take the law into their own hands. I said, in my heart, can there be made no law that will sweep our cities clean of these dens of vice, these sinks of iniquity? If it cannot be so, then at least let something be done to regulate it."

A philanthropic gentleman of Cork, writing to Mr. Logan, says: "It is not likely that the evil will disappear, but to prevent it, as far as possible, is a laudable undertaking.

"As it is a monster evil it will require the united efforts of all sects and parties to grapple with it.

"Asylums are calculated to effect much individual good; they cannot strike at the root. An act of Parliament is the only hope left."

These opinions of many good men, taken together, are sufficient to show us the necessity of investigating this subject.

There would be a great improvement in human affairs if it were possible for all classes of society to live up to the highest standard of morality fixed by any philosophy, yet it is not and never has been done, and it is futile to ignore altogether that which really exists, and leave unattempted the mitigation of palpable evils.

We do not think that we need look for the period when virtue will cover the earth, but we do believe that when men earnestly study and consider the subject properly, a new order of things will come to pass—a new light will spread over the earth, and to this proud old Commonwealth will belong the honor of creating the new law, bearing with it its blessings; and though it cannot at once eradicate the evil, it will in time, under the providence of God and good men, greatly decrease it.

In addition to this, we contend that a law, such as is here proposed, will establish the only practical plan of limiting the spread of venereal disease, and accomplish a great end toward sanitary as well as moral good of a large class of our population.

First. Then as a means of prevention, we propose registration, in order to gain access to the afflicted.

Second. Medical examination, in order to recognize, at the earliest stage, any developing seeds of this malady.

Third. Isolation, to prevent the spread of an infection eminently contagious, and to enable the profession to study more minutely, and under the most favorable clinical auspices, a disease which, for years, has in many points baffled its skill, and by means of which study greater benefits would accrue to the thousands of God's own creatures who are yet to suffer, innocent or guilty.

Fourth. The exactment of a license examining fee from

those who are to be benefited by the law, in order that the expenses, of whatever kind, resulting from this so called luxury, might be defrayed by the participators of it, instead of being a burden to the community at large, as it certainly is at the present time.

And last, we contend that the operation of the law will greatly diminish the evil, and thus indirectly aid the sanitary and reform work.

These opinions cannot be gainsayed or denied, and we hold them in common above the fact "that people will copulate"—some before marriage—others outside the marriage bed—that disease almost necessarily follows, and that merely closing our eyes in its presence does not prevent new cases from occurring, and though we acknowledge the fact "that it is the result of sin," and might be considered "retributive justice," which no doubt is true. Still this does not absolve us, as a christain people, from our duty to attempt its cure and eradication, and free innocent posterity from being cursed with the sins of their fathers.

We have no word of praise for those very upright specimens of humanity, those good Christians, who, unlike Christ, their example, have natures too sensitive to allow them to descend to the common every day walks of life, and there learn of the vices existing, and because they have always thought one way, are too fossilized, too hard, too rusty to imbibe new ideas—the result of modern investigation, and unlike the Good Samaritan, "walk by on the other side," but who complacently praise God "that they are not as other men," and who will at the same time pocket the fee of some venereal sufferer, the victim of retributive justice; earnestly praying, at the same time, that the other partner in crime may soon come along for medical treatment.

Such men are always ready to urge objections and at the same time know well that they have not given the subject a proper degree of study and consideration.

It is likewise often the case, when a new measure like this one is proposed, embodying within it the most wholesome features, its author and its friends are assailed, and treated even discourteously by the very men who should approach it with deep thought and attention.

As one of the representatives of the great medical profession of this Commonwealth, I offer this bill. It has for

its object reform—it is a sanitary measure, and as their advocate, as the public servant, as the friend of posterity, I am here to assist any measure that will tend to assist the unfortunate and diseased.

Once it was urged that, to adopt a system of registration in the United States, it would be wrong, because it was a European vice, and if calculated for foreigners, it was unsuited for Americans.

This, Mr. Speaker, is no argument. In the past it would only be asked to refer you to Sanger's History of Prostitution, and I could prove to you the absolute necessity for a registry law here.

I could refer you to the registry law of France for a like purpose. But now we have convincing, overwhelming proof from an American experiment, yet in its infancy as it were, of the truth of this assertion in the city of St. Louis.

I now refer you to the message of the Hon. Joseph Brown, Mayor of the city of St. Louis, commencing on page 9.

He says: " A memorial will be submitted to the Council during the present session asking for the repeal of the existing ordinance regulating the social evil. Having carefully considered the arguments presented, I am inclined to think that those who unsparingly condemn the law, do so rather from a moral or strictly religious standpoint than with a view to deal with things as we find them in a practical and sanitary aspect.

" The general objections of the religious community is to the so-called permit system, which, it is claimed, gives a legal countenance to immorality, and it is urged that the ordinance in this particular is unconstitutional.

" This may be the case, for a similar objection has been raised against many features in the whole license system of our cities.

" Indeed many municipal laws, as well as the enactments of states and kingdoms, are rather endured by the people for their mutual benefit than accepted on account of any authority on the part of the community to deprive the individual of any of his rights as a citizen.

" The true grounds of the movement against the bill are to be found among religious ideas and theories. Whatever is to be said in favor of its provisions must be found in practical experience and a worldly common sense aspect of things.

"Prostitution has always existed, and will always exist, and if a moral leprosy was the only result, we might safely and properly let it remain in the special charge of moralists and religious teachers; but unfortunately there is also a physical leprosy attached to it, and it becomes the duty of the authorities, to whom the care of the public is confided, to take cognizance of that, the most insidious and pernicious of all diseases, to use every means in their power to check it, and, as in the case of small-pox or any other epidemic, to strike at the disease in every way calculated to lessen or eradicate it.

"Repeal the ordinance, and the disease will again become, as it were, epidemic, and the scenes witnessed before will be re-enacted, of dragging these poor unfortunates through the streets who, either through passion or poverty, neglect to reform their lives, when unable to restore their characters. So far as my acquaintance with the ideas of our more experienced citizens on this subject extends, it is proper to add, their views are in accordance with mine, and a large majority favor the continuance of the law."

I will also refer you to the Eleventh Annual Report of the Board of Police Commissioners, and the Report of the Chief of Police of the City or St. Louis, also, the Sixth Annual Report of the Board of Health.

From these documents we have learned that in an American city, American laws can regulate satisfactorily American prostitutes, and cause not only a marked diminution of venereal disease in American citizens, but greatly decrease the number of courtezans.

(To be continued).

The Late Dr. Morton.

A note has been received from Mrs. Morton in which she points out several alleged errors in our article upon "The Discoverers of Anæsthesia," published in the last number of the *Journal*. The chief correction is, that "Dr. Morton died of congestion of the brain, was taken ill while riding in Central Park, New York, and died before reaching St. Luke's Hospital, to which he was taken. He was not insane nor even in an insane condition; neither did he die of disappointment and grief. That the contentions

of such a controversy did tax his brain too much is not a matter of doubt, but he was too courageous a soul to die of disappointment." We are glad to correct an error which has gained universal currency in all parts of the world. As suggested in the note, it must be true that Dr. Morton was greatly influenced in his mental and physical condition by the severe trials he was called upon to endure in the progress of the ether controversy. We know from personal experience what it is to bear the strain, when in the belief that others are committing cruel injustice by stealing the hard-earned fruits of research and invention. We know all about that, and are ready to believe that one may live for months and perhaps years in the state so closely bordering on insanity as to be hardly responsible for any act committed. Congestion of the brain is not unusual in such conditions.

Mrs. Morton, with the general instincts and noble courage of woman, is ready to continue the contest so long waged by her husband. She is not willing to accept of compromise, and regards Dr. Long's claims as untenable. While we entertain profound respect for this faith in the justice of her husband's claims, still, we do wish that the controversy might cease. No good can come from continuing it longer. The world can never be convinced that either of the four claimants is alone entitled to the honors and rewards flowing from the discovery of anæsthesia. It is better to do honor to all who contributed to the grand result so full of beneficence to the race.—*Boston Jour. of Chem.*

A Seasonable Word on Disinfectants.

Several letters of inquiry concerning disinfectants have lately come to us, and a brief reference to the subject may be of service to many of our readers at this season of the year.

One correspondent writes as follows:—

"Will you in next issue give recipe for disinfecting cesspools. Some years since you gave one that was very effective, but I have lost both recipe and paper. It was a compound of carbolic acid, water, and, I think, copperas."

The recipe to which our friend alludes was given in

the *Journal* about four years ago, in an article referring to the researches of Herr Kletzinsky, of Vienna, who had devoted twenty years to the theoretical and practical study of disinfection. Recognizing the fact that disinfection deals with two distinct evils: *miasms*, or poisonous gases, rich in hydrogen, like sulphuretted hydrogen and ammonia; and *contagions*, or microscopic germ-cells, of which yeast-cells and the spores of fungi are examples,—he sought for a practical method of dealing with both. No one agent known to science will answer this double purpose. The cheapest and best to use against the miasms is copperas, or sulphate of iron; while carbolic acid and its compounds hold a similar position as anti-contagious disinfectants. The combination of the two furnishes the simplest and most potent means of attacking both sources of infection.

The copperas becomes more effective and economical by being converted into a basic salt, which may be accomplished by heating it in the air, or by the addition of carbolate of lime. The latter substance is a safe, cheap, and convenient form in which to use carbolic acid, and it is specially to be commended in combination with copperas, since it not only supplies what that lacks—the power to destroy contagions—but also gives it greater potency in its own special province—the disinfection of miasms. For all cases which admit of its employment, nothing could be better than this mixture of copperas and carbolate of lime.

If one prefers, he can simply mix a solution of copperas (which had better be converted into the basic sulphate by heating before dissolving it) and a solution of carbolic acid, prepared by diluting the saturated solution with four parts of water. The saturated solution is put up in bottles convenient for use, and is not expensive.

Herr Kletzinsky cautions the public, as we have several times done, against the cheap, crude carbolic acids in the market. The chief strength of these is in their odor, as they are often little more than crude, ill-smelling oils of tar, mixed with a very small percentage of carbolic acid. The pure acid is really much the cheaper in the end. For the copperas, on the other hand, the ordinary commercial article, which costs only a few cents a pound, answers every purpose.

Those of our friends, who are spending the summer in

the country, or at the seashore, where there is often the grossest ignorance or negligence in sanitary matters, will do well to bear in mind these plain practical hints on disinfection; and if landlords and boarding-house keepers will not give proper attention to the matter, it will be be true economy to be prepared to supplement the deficiency at their own expense. A trifling outlay for these simple disinfectants will add vastly to their personal comfort, and may be the means of saving their families from sickness. Disease and death lurk unseen in many a summer resort, where the unwary visitor seeks rest and recuperation; and the wise man will look as carefully to the sanitary condition of the place where he spends his own vacation, or sends his family for theirs, as he does to the salubrity of the climate or the beauty of the scenery.—*Boston Jour. of Chem.*

Aspiration in the Treatment of Hernia.

Mr. P. L. O'Neill, Medical Officer, Athy Workhouse, writes to the *Medical Press and Circular:*

The following case is illustrative of the success which Dr. Dieulafoy claims for the aspirator as an aid to the taxis in the reduction of hernia, and likwise of the complete harmlessness of one or more punctures in the intestines, even of patients having a peculiar liability to serous inflammation:

On Sunday, the 19th inst., a patient, far advanced in Bright's disease of kidney, and who had, for some years, a small hernial protrusion, for which he usually wore a truss, was admitted to the infirmary under the following circumstances, viz: Immediately before his admission, while lifting a weight in the absence of the truss, the hernia, which had hitherto confined itself to the region of the external abdominal ring, and was not at any time larger than a pigeon's egg, fell into the scrotum, and in a few moments became as large a a foot-ball, assuming the most exquisite tenderness. I saw him a few hours after the occurrence, but he could not permit me to touch the tumor. To allay the pain, I injected a quarter of a grain of acetate of morphia subcutaneously, and had warm fomentations and a stimulating enema administered.

One hour afterward I revisited patient, and found pain and tenderness abated, but manifested symptoms of strangulation, without any diminution in the size of the tumor. I applied the taxis for ten minutes without success; than had patient placed in a warm bath, and repeated the taxis, with no better result. I next resolved on giving Dieulafoy's method a fair trial, and accordingly aspirated the hernia with a hot needle, with very satisfactory results. I then replaced it with a No. 2, which brought away some reddish fluid, fecal contents and flatus; the needle, however, becoming clogged, I withdrew, cleaned and re-inserted it in another part of the tumor, with the most satisfactory results. Large quantities of flatus were extracted, the hernia reduced to less than half the size it had been a few moments before, and the merest effort at the taxis placed the bowel within the abdomen. From that time to this (Saturday, Nov. 25th), patient has had a stool daily, and not the smallest inconvenience in the abdomen.

The features in the case most worthy of remark are:—1st. That morphia, subcutaneously injected, was preferred to the administration of chloroform, which I would have considered dangerous, owing to the renal affection and cardiac weakness. 2d. That the patient escaped peritonitis, notwithstanding the peculiar liability such persons have to inflammations. 3d. The facility with which the tumor was reduced after aspiration.—*Med. and Surg. Reporter.*

Syphilis and Marriage.

The Doctor, July 1, 1877, contains an interesting letter from Dr. Charles R. Drysdale on this important topic, from which we take the following extracts:

There is a question very frequently asked by a syphilitic patient, to which it requires much thought and an extended experience to reply. This question is: How long must a man who is affected with syphilis wait before he can justly enter into a marriage contract, and undertake the grave responsibility of becoming a father?

There can be no doubt that a syphilitic man may be dangerous, if he marries, both to his wife and to his children, and also to the community through them.

In the first place, it is clear that no man with any actual syphilitic symptom about him has a right to contract marriage with a healthy woman. The presence of any syphilitic symptom is an evident proof of the nature of the disease, with all its consequences and all its dangers. It is scarcely to be believed that any man would be found so daring as to enter the marriage state with the symptoms of syphilis about him. And yet such men exist, and cases of the kind are not so very rare.

I have myself seen men marry with crusts in the hair, and with mucous tubercles in the throat and mouth. We hear of men marrying with syphilitic sarcocele, and even, will it be believed, even on the faith of Dr. A. Fournier, of Paris, ("Le Mouvement Med., May 26, 1877), with a hard chancre in full force.

What a curious history of moral delinquency such facts reveal to the medical practitioner! The cases, however, vary greatly. In some persons we notice a species of ignorance verging on imbecility. Such expose their wives and infants to misery from pure stupidity. Again, there are infamous men who despise all human rights or duties which lie in their way, whenever they have a chance of procuring a woman with money and a position in society for themselves.

The majority, however, are those who, from weakness of mind and infirmity of purpose, engage in a silly way in marriage, without reflecting that they are the least of all fitted for such a contract. Such persons are terrified at the idea of a scandal or a breach between families, and are therefore unable to put off their wedding in face of the difficulties which such conduct might entail on them.

It is well known now to all who have long paid attention to syphilitic disease, that the younger the disease of the husband is, the more numerous and grave are the dangers which he inflicts on all around him if he marry. When syphilis has been recently contracted, it is, as all know, especially contagious. During the first few months, or at most the two or three first years of the disease, we notice above all those disseminated manifestations of syphilis which affect the mucous parts of the skin. These accidents are liable to relapse and spread again with remarkable facility, and with a tenacity which is sometimes disheartening.

At this epoch of the disease there are two foci where

syphilitic accidents converge, namely, on the mouth and on the genital organs, the very localities which are most likely to spread contagion in marriage. When the disease gets older, these dangers no longer exist, or at any rate in much less degree, for this reason, that in old syphilis the manifestations are far more scanty and infinitely less often repeated, and no longer consist in superficial, benign (and therefore dangerous, because unheeded) symptoms; but in deep ulcerations, which are not liable to pass unseen, and consequently cannot be inadvertently transmitted.

We may therefore conclude as follows: The contagion of the husband is the more to be feared in proportion as his syphilis is in its early stages.

With respect then to the influence of the father's health on that of his children, we also find that the earlier the stage of the disease is the more danger is there of the children suffering. This is clearly proven in the numerous facts that are published in medical literature, of successive abortions taking place in healthy women by reason of the syphilitic influence of the father alone. Such abortions gradually leave off just in proportion as the syphilis becomes extinct, and become changed into true child-births at a given time. In time the patient who has done nothing but abort is cured, as is well shown by numerous examples in the writings of syphilographers.

For instance, we find that father's who marry with a syphilis of some months of age, or of one, two, or three years of age' are far more likely to have syphilitic children than fathers who marry when their disease is five, ten or fifteen years old. It is very rare indeed to see any effect on posterity produced by a father whose syphilis is ten years old. Hence, when a man has lately contracted this disease, he ought to put off his marriage for a considerable time; the longer the better, within certain limits. If a syphilitic man waits for several years before becoming a father, he acquires gradually a good chance that such children may be viable, and the longer he waits the better is the chance.

We may then conclude that on every account, as well for the sake of the mother as for the child, the male parent should postpone his marriage for a considerable period. The main difficulty will be in fixing a precise date on such an indeterminate question as this. There

are more things to be taken into consideration too than merely the age of the syphilis in our male patient. The nature and vigor of the attack has to be taken into account.

With this idea being clearly kept in view, and with all abatements for mildness of the symptoms in any particular case, it yet would seem unwise on the part of the practitioner to inform any male patient suffering from hard chancre or mucous tubercles, that he has any right to marry before some three or four years at least have passed over his head."

American Neurological Association.

The Third Annual Session convened in New York City, June 6, 1877, and was called to order by the President, Dr. J. S. Jewel, of Chicago; Dr. E. C. Seguin, of New York, Secretary.

In his *Inaugural Address as President*, Dr. Jewel remarked that in the cultivation of neurological science for the future, there are several things he would be glad to see realized. The first is, that in this country, henceforth, more attention and encouragement may be given to a thoughtful study of the healthy anatomy and physiology of the nervous system. No doubt there are many now among us who are endeavoring to keep pace with the progress in these fundamental departments of neurological science, and some few endeavoring to confirm or enlarge the boundaries of actually existing knowledge; but it cannot be denied that thus far very little comparatively has been done and made public, in our own country, towards advancing a knowledge of the normal anatomy and physiology of the nervous system. The reasons for its neglect thus far, whether good or bad, have now in a great measure passed away. The time has now come—and with it the opportunities—when we should undertake to make some solid contribution in this department of our work. To excite and encourage, and beyond this to prosecute such researches, should be one chief object of the existence of such a society as ours.

Then, again, we need not less experiment, but more care as to the method and results. There is, relatively speaking, too little close, accurate thought, as compared

with the mere observation of facts. The mere discovery of a new fact by sense of observation does not insure that the discoverer will ascertain its significance. What he means to declare is, that mere sense observation has outstripped, and does this very hour outstrip, critical, careful thought. What we need is, not mere observers nor mere thinkers, but more men who, like Bacon, Harvey, Bichat, and others, can not only observe, but, like them, think.

Less reliance should be placed on the records of pathological cases, as they exist in the literature of the past. With a better knowledge of the anatomy and physiology of the body, with a broader range and basis of established facts than ever before, and with greatly improved methods for research, we are able happily to lay a surer foundation, let us hope for trustworthy deductions.

As to the organization and working of the Society, he is of the opinion that the Society is about as large as it ought to be until it has lived a little longer and done more good work. He does not say no new members should be admitted, but for a time let them be few, and admitted with caution. Then, again, the society should continue to hold its next few meetings in the East. The bulk of its members must for a long time be here, and also the means of rendering them attractive. Then, again, the time of meeting should be so changed as not to conflict with other important meetings, which many of our members might feel like attending. In regard to the publication of our papers and discussions, the only things to be done are either to publish an inexpensive account of the proceedings and abstracts of discussions and papers, or to publish a volume of transactions. Of these two plans the latter is every way preferable. A subscription of from fifty to one hundred dollars from each member would completely insure the appearance of the volume. To render the work of the society more effectual, he recommends a diminution in the number of officers, who should, as now, be aided by a council in discussing purely business questions, which should rarely, if ever, occupy the attention of the society as a whole; and that the Secretary be charged with the not very onerous duty of editing the materials, employing such aid as he may need. He also suggests the propriety of the appointment of

committees to report at subsequent meetings on definite subjects.

Next followed the exhibition of an interesting case, by Dr. William A. Hammond, of New York, which he considered one of

EPILEPSY.

The patient, a boy of 18, the Doctor said, might be considered as a case of total moral depravity. He would lie and steal to an extent, without any reason; would steal clothes and other articles, sell them for a trifle, and then give the money away. The boy had been placed in several houses of correction, but they could do nothing with him. In reply to the question, "What makes you do these things?" he said, "I can't help it." He did not seem to be lacking in intelligence. His mother had for a long time noticed blood upon his pillow. Weight of child at birth, one pound. His father is an exceedingly neurotic individual.

Dr. J. J. Mason, of New York, read a paper on

LEAD POISONING IN FROGS,

which suggested a new field for experiment. Notwithstanding the important services which experiments upon this animal have rendered in discovering the mode of action of other toxic substances, not even an illusion to the action of lead upon the system of the frog can be found in toxicological literature. The subject was divided into two portions: 1. Acute poisoning; 2. Chronic poisoning. In the former, the poison (acetate of lead) was introduced under the skin; in the latter, by placing the animals in a solution of the same salt. The acute form of poisoning is characterized by paralysis of the heart with preserved integrity of the motor nerves and muscles; while in the chronic form paralysis of the muscles of volition, with their nerves, invariably results, leaving the heart intact. The muscles always show Erb's *entartungs* reaction to electricity, a characteristic feature of lead palsy in man. A ready method is here found of inducing this condition of the muscles at will, and its value in the study of the pathogeny of lead paralysis is suggested to the consideration of the Association. In view of the little we know on this subject, and of the difficulty of obtaining autopsies in man, and failures to induce the same condition in warm-blooded animal, may not much

be added to our knowledge by further research on lead poisoning in the frog?

The paper being open for discussion, Dr. Hammond, of New York, inquired if there was any evidence of lead being in the nervous system.

Dr. Mason could not say, as he had made no examination.

Dr. Jewell: You found no change in the cord, and applied no chemical tests?

Dr. Mason: No sir; but I wish to do so.

Dr. Jewell remarked that formerly he had considered the trouble in lead poisoning to be central, and even now was inclined to that view, though he had the record of several cases which had raised a doubt in his own mind as to the truth of this.

Dr. Seguin stated that he once had the opportunity of making an observation bearing on this point. The patient was recovering from lead paralysis at the time he was carried off by a diarrhea. Examination of the muscles showed the usual degenerative change. Sections through the cervical enlargement showed slight granular change in the ganglionic cells of the anterior horns. At that time (1875) Dr. Seguin took strong ground in favor of a central affection, and is still disposed to this view, though not as strongly as before.

Dr. T. M. B. Cross, of New York, did not favor local absorption, but considered the affected region central and high up.

Dr. J. S. Jewell made a verbal report on the progress he had made in the examination into the

STRUCTURE AND FUNCTIONS OF THE GANGLIA ON THE POSTERIOR ROOTS OF THE SPINAL, AND ALSO OF THE CORRESPONDING PART OF THE CRANIAL NERVES.

His remarks were a continuation of a paper on the same subject, read before the Association at the last annual session.

He stated that his researches were far from being complete, but to him were suggestive. An important question was as to what became of the fibres which appear to rise from the nerve-cells found in the ganglia in question. Do they pass toward the cord or toward the periphery of the body? The Doctor's first opinion was the same as that held by many others since the time of the early obseva-

tions of Kolliker—that they pass toward the periphery—but he has since abandoned that opinion. His opinion now is, that they do not pass either way, but that they join the axis-cylinders of the fibres of the sensory root at the so-called "constriction of Ranvier," as these fibres pass through the ganglion. This view he was first led to entertain by seeing preparations of these ganglia made by Dr. Amidon, of New York, and after reading the account of these bodies, given by M. Ranvier, who describes what he calls the "terminaison en T." This mode of termination of nerve-fibres in other nerve-fibres, Dr. Jewel has since ascertained, had been described by R. Wagner, of Gœttingen.

Dr. Jewell has abandoned his opinion that the nerve-cells of the ganglia give off two processes, which connect with either two nerve-fibres, or one other cell and a fibre, or with two cells. He now believes that they are never connected with but one fibre, and that fibre connects, as already described, with the axis-cylinder of a sensory nerve-fibre, as it passes through the ganglion. But for what purpose does this connection exist? This question, Dr. Jewell thinks, is fully answered by making sections, in the living animal, of the posterior or sensory root, at one time between the cord and ganglion, and at another on the peripheral side of the ganglion. In either case, Wallerian degeneration sets in, but in a curious manner. In the case of section on the central side of a ganglia, the degeneration is toward the cord, not toward the ganglion; while in the case of the section on the peripheral side of the ganglion, the degeneration of the nerve-fibres takes place toward the periphery, and not toward the ganglia. These observations show conclusively that the ganglia exert a conservative influence over the fibres of the sensory nerves throughout their whole length, from the periphery to their implantation in the spinal cord. Here, then, we have a highly probable determination as the function of the nerve-cells in the ganglia on the superior roots of the spinal nerves. They exert an influence on the nutrition of the fibres of the sensory root. Their function is trophic. They are part of a *trophic nervous system.*

Another question arose as to whether these same ganglionic bodies do not exert an influence on the non-nervous tissues of the body, through the sensory nerves with which the spinal ganglia, on the one hand, and the

ultimate anatomical elements of the tissues, on the other, stand in such intimate relations. Dr. Jewell announced that it was his conviction that such was the case. The nutrition of most parts of the body is, to a certain extent, and in a certain manner, under the control of the mechanisms found in the ganglia. He did not want it understood that it was his opinion that the nutrition of the body *depends* on either the spinal ganglia or any other part of the nervous system, but that it is to a certain extent under its control. Disease of the ganglia, and also of the spinal cord, may lead to such changes in nutrition as to lead to the so-called idiopathic inflammations we so often witness in the skin and other parts of the body, and indeed any cases involving nutritive change, side by side with changes in blood-supply, which cannot be fairly connected with a local injury, mechanical, chemical, or otherwise. As regards the vascular changes which follow in the wake of irritative tissue change of presumed neurotic origin, they are to be explained on quite different grounds, since they occur through the agency of a different class of nervous mechanisms. It was his opinion that the spinal cord contains, in connection with the medulla, and possibly the brain, a central mechanism, which may properly be called trophic, and that the spinal ganglia probably bear the same relation to it that the ganglia or the fundamental chain of the sympathetic, so called, do to the central vaso-motor mechanisms of the cord and medulla.

Dr. Hamilton asked for an explanation of the way in which atrophy occurred, as, for instance, in progressive facial atrophy.

Dr. Jewell replied, using the blackboard to illustrate his remarks, that from a certain nerve-cell, in which we suppose a nerve-fibre to terminate, there are given off two or three filaments: one of these passes to another group of cells, a second to another group of cells, and so on. One of these groups has a trophic function, another group has a sensory function, and another group has some other function. Now, it is possible to have this trophic group the seat of disease, which shall be exerted through its cells all along the fibre, while its sensory function remains intact. His belief was that the sensory nerve-fibre conducts all kinds of sensibility. Only in the above way could he explain local inflammation or local atrophy.

Microscopy.

The Resolving Power of an Objective as Effected by Focal Distance.

Below we give a couple of letters received from E. Gundlach, the highly distinguished maker of microscopic objectives. We have no doubt they will be highly interesting to our very many microscopic subscribers, as they explain some facts in the construction of objectives, affecting the resolving power, not generally, we believe, understood.

The first letter was written by Mr. Gundlach in German, and translated into English by a friend. The second letter was written by Mr. G. in English. Although familiar with his own language, writing with ease and elegance in it, he is not acquainted with all of our English idiomatic expressions, and therefore the letter contains some German idioms, with some circumlocutions here and here in consequence of his English vocabulary being limited. With this explanation, we thought best to print the letter as written, for fear that, in attempting to anglicise it, we might modify its meaning.

The second letter, it will be perceived, is in reply to a letter written by us in answer to his first letter. We kept no copy of it, and consequently cannot furnish it. It is, however, only necessary to state that in it was argued that, notwithstanding it was true *practically* that the resolving power of a lens could be increased by shortening its focal length, independent of any change in its angle of aperture, yet it remained *theoretically* correct that resolving power was in proportion to angle of aperture. An object gives out rays from every point in every direction—consequently the more of these rays that can be utilized by increased aperture the greater will be the *visibilty*.

Rochester, N. Y., July 12th, 1877.

"Dr. J. A. Thacker;

Dear Sir—The resolving power of an objective does not depend exclusively on the size of its angle of aperture, but just as much on the degree of correction of the aberrations.

The enlargement of the angle of aperture would entirely fail to accomplish its aim to increase the resolving power, if the degree of correction of the abberations were not heightened at the same time, and in the same proportion. The best means to attain this latter purpose consists, however, in the thickening of the front lens, and consequent shortening of the working distance, as I have clearly demonstrated in my theoretical description of my new condensor.

This short working distance of an objective of the highest resolving power is by no means conditional of

the size of its angle of aperture, as is often believed to be the case, for with equal sized angles of aperture a great difference in the working distance is possible, but it serves only for this correction of the aberrations, so essential to obtain the highest results.

It follows from the above, that with a dry objective the maximum performance requires the minimum working distance. The immersion is nothing more than a substitute for the extreme thickness of the front lens, formed by a corresponding stratum of water, to gain with the highest possible performance a tolerable working distance.

With my $\frac{1}{5}$th dry objective, the working distance has been fixed at sufficient length for convenient use, and a corresponding part of its resolving power has been sacrificed for this purpose. The $\frac{1}{6}$th, however, is constructed as a dry objective of highest resolving power, with a corresponding sacrifice of working distance. I can make any desired variations (gradations) between the two objectives. But I find it impossible to construct a dry objective having, with equal performing power, a greater working distance. I am not informed whether other opticians have succeeded in attaining such a result, but my moderate theoretical knowledge leads me to regard this as impossible; and attentive as I have always been to discover whether others have succeeded in a higher degree than myself to unite these two qualities, I have, by observing the performance of others, only found a confirmation of my own theoretical views in this respect. I should feel very grateful to be shown a dry objective, which, with equal performance, and equal magnifying power, exceeds my $\frac{1}{6}$th objective in working distance. E. GUNDLACH.

Rochester, N. Y., July 21st, 1877.

PROF. J. A. THACKER;

Dear Sir—You are correct in stating that the resolving power depends upon the aperture—the larger the latter, the greater the resolving power. But an increase of the aperture will only be of advantage, if, at the same time, the aberrations are lessened. For instance, I have my $\frac{1}{5}$th, and wish to alter it, so that it will have a higher resolving power; for this it requires a larger aperture. This latter I can get easily, if I make an objective in which the lenses all have the same curvatures, but the

diameters larger. So I get a $\frac{1}{5}$th with larger aperture and the same working distance. But such an objective will have *less* resolving power than the old one, because that part of aperture that is added to that of the old style is very much increased in its aberrations *of higher order*. All aberrations that *can* be brought away by the ordinary way (by best proportions in curvatures of the crown and *flint* glass lenses) *has been* brought away, but this way of correction leaves, as is well known, always a rest of aberrations, called the aberration of higher order. These latter, which cannot be brought away, increases with the aperture so strong, that an objective, going in its aperture over a certain point, will get worse. If I, therefore, make my $\frac{1}{5}$th to have a higher resolving power, I must not *only* make the lenses larger, to have a larger aperture, but I must also at the same time bring the increased aberrations of higher order away, that the increased part of the aperture have. And as this can not be done in the said ordinary way, I must use another way, which will do this. The only way there is for this is the shortening of the focal distance. This way has the valuable property of correcting without leaving a secondary rest. With other words: That part of both aberrations that is corrected by *this method* is corrected *pure*. From all this it results, that enlarging the aperture can only be of avail by at same time shortening the working distance (or using immersion). And further: As the resolving power depends upon the aperture, it also depends in same ratio upon the working distance.

As I said in my letter to you: Any one who will show me an objective of the magnification and the resolving power of my $\frac{1}{6}$th, dry, but with a longer working distance than mine, will do me a great favor, and will greatly oblige me. But from all I have seen of other makers' work, including that of Tolles, I do not believe that they can do what I can not do. Yours, truly, E. GUNDLACH.

Zentmayer's Histological Objectives.

Mr. Zentmayer, of Philadelphia, is now making well corrected objectives, an $\frac{8}{10}$th and $\frac{1}{5}$th, at very moderate price—the latter of 75° angle of aperture, resolving by oblique light p. angulatum. They belong to his "Ameri-

can Histological Stand" which he has recently commenced to make, and which, with the lenses and one eye-piece, he sells at $50.

We are glad to see our American makers engaged in making stands and good objectives at such low rates, that those of the most moderate circumstances can afford to own an efficient microscope. We hope soon to have banished from the country the miserable, cheap French glasses, which are worse than none at all—being an aggravation. At but slightly higher price American lenses can now be had that are good enough for all the purposes of the physician, botanist, and entomologist,—in fact are able to do work that only the finest a few years ago would do.

We now have Mr. Zentmayer making a $\frac{1}{5}$th, of 75° angle of aperture, at $12, and Mr. Gundlach, of the Bausch & Lomb Optical Co., making the same power of 100° angle of aperture, for $15. Surely this is very cheap.

San Francisco Microscopical Society.

ADULTERATED SULPHUR.

Mr. Hanks presented three mounted slides to illustrate the substitution of powdered sulphur for the more costly and pure sublimed sulphur. Mr. Hanks was requested by the Pharmaceutical Society to examine microscopically three samples of sulphur sold as sublimed, and obtained at three wholesale drug stores in this city, neither of which was found to be genuine. Sublimed sulphur under the microscope is seen to consist of globular particles and botryoidal and stalactitic masses, characteristic and readily recognized at a glance when known. Powdered sulphur, on the other hand, although similar in appearance to the unassisted eye, is shown by the microscope to be in the form of angular fragments of irregular size. As the pulverized crude material contains a certain percentage of foreign matter, it should be ranked among adulterated articles, when sold for the pure sublimed sulphur, as is usually the case.

Dr. H. W. Harkness read a very interesting monograph, which gave a portion of the results of a very elaborate and careful study of a fungal parasite, which is credited with

doing damage to the amount of thousands of dollars, and is stated to be more dangerous than the rust of smuts. —Erysiphe, or Wheat Mildew.

The cultivation of wheat, our staple agricultural product, owing to its superior quality and a never-failing market, has already assumed such vast proportions as to astonish the beholder, while the farmer is preparing to increase its production to an almost illimitable extent.

There were, however, thoughtful men in our midst who entertained fears that this over-production would yet engender disease; that nature, so to speak, would become weary of furnishing from earth and atmosphere the elements necessary for its further development; that some pest might with reason be anticipated which should serve to contract our immense fields as well as to greatly diminish the yield.

Until the present season nothing of the kind has occurred to verify these predictions; although in the spring of 1868 the larva of a fly threatened to do great harm to many thousand acres of wheat within the county of Yolo. This larva took up its abode within the stalk, at the base of the culm, nearly every stalk possessing one or more of these unwelcome tenants. As it proved, however, to be a light feeder, the grain matured without serious damage, and since then it has never been observed. Aside from this, a few low lying fields upon the banks of our rivers, have from time to time been affected by the yellow rust (*Puccinia graminis*); the damage resulting has, however, been so trifling in extent as to excite but little attention. The pest which appears for the first time this spring, termed by the farmers " white rust," or " mildew," is one which may well excite the fears of the agriculturist. It has already invaded the more mature fields within the limits of four or more of our heaviest grain-producing counties, where at least half a million acres of wheat are in great peril, some of it already destroyed.

The first notice of its existence appeared during the first days of March; but owing to absence in a distant portion of the State, I was unable to procure specimens until the 28th inst.

The fungus appears upon the expanded leaves in closely-felted patches of dirty white color; the patches varying from one-sixteenth to one-half inch in length, following the longest diameter of the leaf, equally on both surfaces.

When the leaf still adheres to the stalk, it often extends entirely around it, forming a zone, extending upward for an inch or more. With the aid of a pocket lens numerous black spots are observable, closely enveloped in the felted material.

The more mature spots may be peeled off from the leaf, but the tenacity with which it adheres to it, seems to indicate a union somewhat more intimate than that of mere contact, doubtless owing to some contact with the hairs of the leaf.

The subject was illustrated by a series of objects prepared for the purpose, and the verbal explanations given of the stylospores, concepticles, picnidia, and zoospores still held in their gelatinous investment were listened to with great and interested attention.

The matter of the rust, which is also troubling the anxious tiller of the soil, came up in the shape of a paper by Mr. C. Mason Kinne, accompanied by half a dozen slides, prepared to show the fungus, and as the average farmer of to-day is not satisfied with a bare statement, but is found to be interested in any information pertaining to their interests, it is given for their benefit, as well as the general reader and those more particularly interested in grain products:

TRICHOBASIS, OR GRAIN RUST.

To the Members of the Microscopical Society—GENTLEMEN: That the microscopic fungi possess charms for the mycologist is evinced by the attention they have received from such scientists as De Bary, Greville, Corda, Tulasne, Leveille, Berkeley, Cooke, Farlow and many others. That many of them possess more than ordinaryin terest is often brought about by the fact of their parasitical nature, and coming, as they do, constantly before the agriculturist in the shape of stealthy destroyers and pests that are not to be eradicated by any of the ordinary processes, the general student at the microscope is naturally brought to an investigation of a matter of so much commercial moment.

A few days since I had occasion to examine, with one of our members, Mr. E. J. Wickson, of the *Pacific Rural Press*, some samples of grain from near Colusa. While the rust may no doubt be found in that section, the sample sent was only affected with a mildew or blight which was satisfactorily proven, by the aid of the microscope, to be

an erysiphe, a fungus which does not penetrate the cell-structure of the leaf, but does its harm to growing plants or vines by a dense growth of mycelial threads spreading over the epidermis, preventing its normal growth, and covering the stomata or breathing-pores, and thus shutting out the air from the leaf. More recently, Dr. Mouser handed me some grain stalks, received by him from Mr. Fowler, of Sonoma, to which I have given some attention, and from which I have prepared objects for examination this evening.

It will be noticed that the leaf is colored with the spores of a fungus, mostly in masses, and others scattered indiscriminately, though with great profusion, over the surface, after breaking through the cuticle from the cellular structure, while a transverse section, under a moderately high power, shows that the latter is filled with a network of searching mycelium,

WHICH TENDS TO SAP THE LIFE

Of its host. Further and more critical examination shows the characteristic features and unilocular uredo-spore of the true "rust" of the agriculturist, or *Trichobasis rubigo-vera* of the botanist, one of the phases of *Puccinia graminis* or brand. A drop of water applied to another transverse section of a leaf with the darker masses of pseudo-spores, I find will instantly free a profusion of minute motile zoospores or spermatia, which can be seen gyrating and moving about in great activity in a manner somewhat similar to bacteria.

It is not known just how the grain becomes diseased, for microscopic examination shows that the pseudo-spores are too large to enter the leaf through the stomata. Their granular contents, if endowed with reproductive powers, possibly may be taken up through the roots and lodged in the general structure, or by effecting an entrance through the breathing pores of the leaf, in either case only wait a favorable combination of circumstances to give them an opportunity to germinate in a plant thus infected; or pseudo-spores carried by the winds to the leaf, finding favorable climatic conditions, may there vegetate, and the mycelium searching out the stomata, no doubt enter and commence its parasitical life. When it is remembered that from a particle of matter, not the two-thousandth part of an inch in size, a good-sized puff-

ball or mushroom will grow in a night, and that a few hours is often time enough for the *peronospora infestans*, or "potato blight," to do its work,

THE SUDDEN APPEARANCE OF THE RUST

In a field of wheat will be understood. Grain standing on rich ground, in a sheltered position from winds, particularly our drying Northers, infected with the germs of the disease, wait but a shower of rain, or warm, moist atmosphere and sunny days to show evidences of the trouble, though it is fortunate that the exact conditions favorable to the development of the fungus are comparatively rare. Were the spores favored with but a fraction of the opportunities given the grain which furnishes them a habitat, good crops of cereals would be the exception, though not nearly all fields attacked are necessarily ruined.

THE PRACTICAL PART

Of any study into the habits of this pernicious pest is apparent if any means can be devised to cure or prevent the infection, and everything goes to show that to aim at prevention is the only method for the agriculturist. Speaking of *Puccinia*, Cooke says: "It is worthy of remembrance by all persons interested in the growth of wheat, that the 'brand' is most common upon plants growing on the site of an old dung-hill, or on very rich soil. As the same *Puccinia* is also found on numerous grasses, no prudent farmer will permit them to luxuriate around the borders of his fields, lest they serve to introduce or increase the pest he so much dreads." Many remedies have been tried as preventives against rusts, smuts and brands, and it seems that the most effectual is to treat the seed-grain to a bath of the solution of sulphate of copper, which kills the spores carried along with the grain, or washing in a strong solution of "Glauber's salts," and afterward, while still moist, dust over with quick lime, from which will be eliminated a caustic soda fatal to the germination of the spores. C. Mason Kinne.

The objects prepared were exhibited—the one showing the manner in which the outer coating is broken up by the fungus, and that in apparent ebullition from the activity of motile zoospores receiving marked attention. Mr. Kinne took occasion to say, in conection with the subject, that the first real insight he had had in this interesting branch of microscopical study was from Dr. H. W. Hark-

ness, who, it will be remembered, gave the Society such an impetus some years ago, by generously going over elementary ground in vegetable histology, in the interest of members who desired it. Dr. Harkness is now hard at work on the fungi of the Pacific Coast, and has made frequent and extended trips of late through various parts of the State. He has but recently returned from Southern California, where, accompanied by Mr. J. P. Moore, he bagged many new species. A previous

FUNGUS FORAY

With the same gentleman, along the North Pacific Coast Railroad, resulted in over a hundred species, many new to science, and laid the foundation for months of indoor work when the season is advanced so as to preclude the finding of specimens of their favorite division of the cryptogamia in such paying quantities. We understand that their collection of fungi has now reached such dimensions as to warrant the issuance of the first edition of a catalogue of the fungi of the Pacific Coast, which promises to be most complete and voluminous.

Some remarks were made by Dr. A. M. Edwards concerning the double staining of animal tissues by a single immersion in a new fluid; and also of large beds of diatomaceous deposits which could be found near San Pablo and other points in Contra Costa county, after which a motion was passed authorizing the Trustees to make all necessary arrangements for the Annual Reception to take place in the latter part of May.

Gleanings.

Death from Ether.—We have to record a death ocurring during the administration of ether in the practice of Dr. A. D. Sinclair of this city. The patient, a young school teacher, had suffered for some time from dysmenorrhea, for which incisions of the os were advised. The operation was performed on Wednesday, July 19th, ether having been administered by Dr. Vogel. The patient was placed upon the left side with the left arm behind her, as in Sims' position for a vaginal examination. The first steps of the operation had scarcely been completed when, to use Dr. Sinclair's expression, the patient suddenly died. We shall

hope to obtain a detailed account of the case at an early day. It is hardly necessary to add that the unjust suspicions of foul play which have been thrown around this case, have not been borne out by the testimony thus far given at the inquest at the time of writing, and have had no weight in the minds of the professional brethren of Dr. Sinclair.—*Boston Med. and Surg. Journal.*

Vaccination Judicially Considered.—Lord Chief Justice Cockburn made the following declaration from the Queen's Bench in November, in the case of the Keighley Board of Guardians, who have been persistently obstructing vaccination in their district: "They have no doubt been actuated by conscientious motives, but it is not for members of a constitutional community like ours to set up their individual judgments against that which is the law of the land. It may be that here and there some mischief may have resulted from the practice of vaccination; but when we bear in mind that which we historically know, although, perhaps, these defendants may not know it, that before vaccination was introduced the small-pox was one of the greatest plagues and horrors that ever desolated a land; that it swept away its victims by thousands and tens of thousands; that it was a source of the greatest terror to the whole community; and that this plague has, practically speaking, been put an end to by this mode of dealing with it, we feel that this fact should influence the minds of all persons in favor of vaccination, as it has the Legislature, and the whole of the enlightened and educated part of the nation. That, however, is not the ground upon which we proceed. We proceed upon the ground that it is for the subject to obey an Act of Parliament, and for this court to enforce obedience."

Suppression of the Salivary Secretion.—(*Can. Med. and Surg. Jour., April, 1877.*) Dr. D. Baynes relates the details of one of those rare cases occurring after an attack of acute tonsilitis. Both Steno's and Wharton's ducts were found open on examination. The patient said that his tongue felt too large for his mouth, and that the latter seemed filled with tallow. He was continuously obliged to wash his mouth or drink both night and day to prevent the choking sensation experienced from the dryness of the mucous membranes. After three weeks' ineffectual treatment by stimulating gargles and internal remedies, a

copious flow of saliva was induced by passing for ten minutes the frequently reversed current of a 12 cell zinc-carbon galvanic battery through the parotid gland, the negative pole being connected to a probe placed in Steno's duct, while the positive was applied to the nape of the neck.

Sir Thomas Watson, M. D., though now in his 86th year, continues to write for the scientific and literary journals with all his wonted grace and force of style.

Book Notices.

THE PRACTITIONER'S REFERENCE BOOK. Adapted to the Use of the Physician, the Pharmacist, and the Student. By RICHARD DUNGLISON, M. D. 8 vo. pp. 341. Philadelphia: Lindsay & Blakiston. Cincinnati: R. Clarke & Co. 1877.

This is a work of ready reference, containing, in a compact and tangible shape, information of a purely practical character, and which will undoubtedly prove a desirable addition to one's medical armentarium. The physician is frequently at a loss to know in what direction to look, in order to procure such facts and hints as are here collected, some of which are widely scattered through voluminous professional treatises, or the—in many instances—inaccessible pages of medical periodicals.

Under the head of "General Information for the Practitioner," we have given the weights and measures of the U. S. Pharmacopœia, and of the metrical system—the relations of these, etc.; approximate conversion of ordinary measures into gramme weights; conversion of cubic centimetres into fluid-drachms; solubility of medicines in water, alcohol, ether, glycerine, etc.; and much other useful information. Under the head of "Therapeutic and Practical Hints," it is stated what the practitioner must learn of the patient; doses of medicines for adults, children, young children; doses of remedies in general; maximum doses; doses of medicines administered hypodermically; atomized fluids for inhalation; medicines in the form of gargles; collyria; injection into the urethra; vaginal doses for vital suppositions; uterine; and vaginal; incompatibles, or what should not be prescribed in com-

bination; what to prescribe in the solid or the liquid form; examination of the sediments of urine; obstetric memoranda; poisons, there nature and treatment.

But our space will not permit us to give even a meagre outline of the vast amount and variety of information contained in the work. Every page is filled with it, and that which is of the most practical character. The young, the old, the learned, and unlearned practitioner will find daily occasion to consult the book. In fact no work in one's library would probably be referred to so much.

Editorial.

CINCINNATI COLLEGE OF MEDICINE AND SURGERY—As a matter of interest to the graduates and friends of the *Cincinnati College of Medicine and Surgery*, we announce the fact that the trustees of the institution have determined to hold hereafter but one session a year, instead of two as heretofore. This will be one of five months' length.

Whether the single term will be held during the fall and winter, or during the spring and summer, has not yet been determined upon, but is being considered by the trustees. It will not be definitely settled for some two or three months yet. So soon as it is, *it will be publicly announced.* Until that is done, all can feel assured that a decision has not been come to.

The fall and winter session will be continued the coming season, commencing October 3d, as usual, for the reason that the subject of only one session a year was sprung too late to omit it, whether continuing to hold a fall and winter term be decided upon or not, or whether a spring and summer one be adopted.

Each of the two seasons has its advantages, and we will endeavor to point them out as they have been severally rencounted by the advocates of one and of the other, only that we will combine the relation of them to some extent, employing our own language.

In support of holding the session in the fall and winter a number of reasons have been advanced. At this time of the year, an individual can more easily content himself to be confined within doors at hard study. The unattractive

weather forbids one seeking recreation without, and tends to drive one in to occupy the time in mental labor. It is the time of the year that is most selected for medical lectures, and, therefore, it seems more natural to hold them at this time—to run along in a rut is more in accordance with the feelings. There is more activity at the hospitals at this time of the year—the city containing many medical students, the clinical lectures are increased to some extent. The weather being cold, anatomical material is better preserved, and the long evenings are favorable for dissections.

These are briefly the reasons for preferring the fall and winter of the year as the time for holding medical lectures, and they are weighty. If one consulted personal convenience, inclination, custom, and limited his view to certain advantages, but of importance, however, he would unhesitatingly decide upon a fall and winter term of lectures.

But reasons worthy, certainly, of very serious consideration have been presented to the trustees to select the spring and summer as the fittest time for the single session of the *Cincinnati College of Medicine and Surgery*. There are at this time three schools of *regular* medicine in Cincinnati, more than is sufficient, as is conceded on all sides, for the education of those who seek this city at any given period of the year to attend upon lectures, if they all hold their courses at the same time. In the fall and winter about 300 or 350 medical students come to Cincinnati to attend one or the other of the colleges. This may be regarded as the *legitimate* patronage of the city, subject only to slight variations, in consequence of its location, advantages, etc.; and from this number each of the three schools *must* derive its matriculants. That this is correct every one having any knowledge must know. For a college to draw students to the city, *per se*, independent of the general advantages afforded by the city, it would have to offer *extraordinary* inducements, either in the way of very low fees, or no fees at all, or in some other tangible form. Mere ability of all or a portion of the members of the faculty would not suffice, for eminent men are in the schools of all the neighboring cities, or at least eminent enough to satisfy the average student of their capacity to teach, and this is all the *average medical student* seeks for. He, the least of all students, is attracted

by sound of trumpet and glitter. He is matter of fact, always impecunious, and to attract him from the city where he naturally belongs, something tangible must be held out in the way of inducement, as the saving of money. While he admires brilliancy, he is well aware of the fact that the most brilliant doctors are not necessarily the best teachers—that oftentimes they are the poorest. The *average medical student*, therefore, will not waste the money he so sorely needs to set him up in business in running after greatness. If, therefore, besides the three colleges that are already established in Cincinnati, three others were started, the patronage of these latter would necessarily have to come out of the 300 or 350 students that naturally belong to the city, providing they sought patronage on the same terms as regards fees, etc. This seems so plain that no one will atempt to argue to the contrary, who is at all intelligent in the facts which apply in the patronage of medical colleges. If the three schools, which are now existing, average 125 students each, three new ones, if they were equally successful in drawing from the whole number coming to this city, would reduce the number in attendance upon each to 60 or thereabouts. Would this be conducive to the interests of medical education? By no means. While the new ones would only be able to lead a sickly existence, they would undermine very much the strength of the other three, before more or less prosperous, and injure their efficiency.

But the *Cincinnati College of Medicine and Surgery*, not being the youngest of the three colleges, why should it retire from the field and give place to the others, yielding its patronage to them? It has been in existence a quarter of a century, has a substantial and convenient building, and other advantages. It was in no wise started up as an opposition college to the *Medical College of Ohio* like the *Miami Medical College*, whose professors, having been expelled from it, formed their organization from no higher motives than to hold on to the *eclat* of being teachers of medicine, of which they had been deprived, and to break down the Medical College of Ohio in revenge. At the time of the organization of the *Cincinnati College of Medicine and Surgery* "a want was fulfilled." The Medical College ot Ohio was poorly organized; the profession, in and out of the city, were dissatisfied with it; and there was a pressing need of re-

form. Under what obligations then is the Cincinnati College to give up holding a fall and winter session? None in the least. Although the Ohio College is the oldest, it many years ago forfeited its claim to hold the field alone, and consequently can base no rights of priority. If there is a duty resting on any one of the three institutions "to step down and out," that duty devolves pre-eminently upon the *Miami Medical College.*

But since the Cincinnati College has determined to adopt the one term plan, selecting the spring and summer instead of the fall and winter for holding Lectures would merely be exercising a choice, and not yielding place to the other schools as a matter of duty. It would choose the spring and summer session *because it had a right to.* If it has but one session a year, it must drop one or the other, and, under the circumstances, it is to be presumed it will carry on the one by which its usefulness will be increased, its influence enlarged, and will be the most profitable to it; and the spring and summer session makes from three to four times the dividend the winter session does, sometimes more. As regards the latter point, we may here state that the laborer is worthy of his hire, and that a physician should be remunerated as well for teaching the *modus operandi* of his art as for prescribing for the sick; and if it is considered in bad taste, and unprofessional for him to do the latter for nothing, except in cases of charity, it should be equally regarded so in the former instance. To engage in teaching for no other emoluments than the *eclat* which is supposed to be attached to being a professor, exhibits a willingness to work at a very low price, and implies that the individual is of small calibre, intellectually, and his services of little value. A man of learning and solid merit requires to be paid.

A strong reason which urges itself upon the trustees of the Cincinnati College why they should choose the spring and summer season, instead of the fall and winter, is that it is the only medical college in the West that has successfully carried on a spring and summer session. It is the *pioneer college* in this respect. The classes have always been large and remunerative, thus demonstrating the actual demand for a school at this time of the year in some one of the cities in the West. It is well known that very many of the best young men who aspire to enter the

medical profession are quite unable, from circunstances surrounding them, to attend lectures during the autumn and winter. Some of these are teachers, who, being compelled to rely upon their labor for means, find teaching most profitable during the cool season. There should certainly be an institution to accommodate those who can best attend instruction in the spring and summer; and as the Cincinnati College is the only school that has met with success at this time, it at once occurs to every one that it should be the one. It here has an open field; and a very extensive one. In winter the territory is necessarily very limited, being divided up among very many other schools, but in summer it has nearly the whole country to itself.

Right here we will state, having forgotten it before, that although there are more clinical lectures during the winter than in the spring and summer, yet during the latter season there *are more clinics than a student can make use of*. Surely, then, these are enough. Also we will mention that the present improved methods of preserving material permits dissections to proceed with ease throughout the months of March, April and May—a longer period than is devoted to them in a fall and winter term.

A fact which has very great weight with the trustees in favor of a spring and summer term is, that not only are the graduating classes in the summer from two to three times as large as they are in the winter, but the gentlemen composing them are much superior in their general intelligence, medical attainments, and character. There is no school in the whole country that ever graduates a class superior in all the qualifications necessary to make *the* physician of a high order to those graduated by the Cincinnati College at the close of its summer sessions. All the members, with scarcely an exception, are gentlemen of education, refinement, and culture. Many of them have become the leading physicians of the country. Not a few are prominent contributors to medical literature. Some are professors in medical colleges, others are or have been presidents of state medical societies, county and local societies. It is not the wish to cast any reflections upon those who have graduated at the close of a winter term, for many of these are first-class men; but every one who has knowledge of the college, is well aware that the summer classes average much higher in their proficiency.

But we have already extended this article too long, and our time, too, is limited. The subject before the trustees is an important one, and should be decided with care. It concerns not only the welfare of the Cincinnati College, but the welfare more or less of other institutions. The more medical colleges that are in session at one time the less will be the patronage of each, and the less the efficiency. The advantages afforded by Cincinnati for acquiring a medical education brings to it, we have stated, from 300 to 350 students each winter. These, at present, must be divided among three colleges, which will give to each just support enough to keep them in existence and no more—not enough to give them a vigorous life of usefulness. If one changes its time, the remaining two will be afforded an opportunity for improving their facilities, and making Cincinnati a more desirable point for medical students.

As the Cincinnati College is the pioneer in holding a spring and summer session, and it would not be an experiment with it, having been successful in the past, it follows that it should be the one. Its own interests require it. Having much larger classes in the spring and summer, and students of a much higher grade, it would be folly on its part to abandon that time of the year to compete with the two other colleges for a share in the limited number of students that seek Cincinnati in the winter, when every student it takes from them will be to cripple them in their resources. At the same time there is an urgent demand for it to continue its summer term by students of the highest grade throughout the United States, who cannot conveniently attend a winter term. This demand is so great that it must be fulfilled, and, if the Cincinnati College abandons the summer session, another school will very soon institute one, and when the Cincinnati College has become wearied of carrying on a struggle for a bear existence in competing for patronage, at a time of the year when far too many schools are holding sessions, and would return to the time in which it had previously been prosperous, it will find the season fully occupied by schools that have started in the mean time. The act would be a clear act of self-destruction; and, if a coroner should convene a jury to set on its remains after its decease, the jury would undoubtedly bring in a verdict: "Died from an attack of fatuity of its trustees."

Changes.—Prof. M. L. Amick, of the Cincinnati College of Medicine and Surgery, having presented his resignation of the Chair of Anatomy to the Board of Trustees, the same has accepted it, after first conferring with him for the purpose of prevailing upon him to withdraw it. Prof. A. withdraws from the school with the best wishes of his colleagues attending him. No one ever had more the interests of the school at heart.

The Faculty have transferred Prof. W. A. Rothacker to the Chair of Anatomy, *vice* Prof. Amick resigned. They have alse placed in the Chair of Ophthalmology and Aural Surgery Dr. Joseph Aub, of the staff of the Cincinnati Hospital, a gentleman who will no doubt fill the Chair with credit. Dr. A. B. Isham, of whom we have heard favorably, has been chosen by the same body to fill the Chair of Physiology.

Prof. Amick's Address.—In this number of the Medical News we print the address of Professor Amick. We had thought of making some friendly remarks in regard to it, but having been passed upon by the Dean, we would probably be transcending our duty in doing so, and therefore refrain.

A St. Louis Grand Jury Demands the Regulation of the Social Evil by Law.—The Report of the Grand Jury refers to the repeal or the Social Evil Law, which was in force previous to a couple of years ago, and says the crimes incident to the social evil have greatly increased since the repeal of the law. It says that under existing laws the police authorities are almost powerless to suppress the crimes which inevitably flow from the brothels of the city, and the jury declares that the best interests of society demand the re-enactment of the Social Evil Law, with a view to check this vice as much as possible. It is understood the jury found indictments against a large number of persons who rent houses to dissolute women, but as *capiases* have not been issued yet, the names of the indicted parties have not been made public.

It is also understood that a number of indictments have been returned against persons charged with fraudulent voting and manipulating ballots in the Scheme and Charter election.

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Original Contributions.

Cases of Phymosis and Adherent Prepuce.

By JOHN C. HUPP, M. D., of Wheeling, W. Va.

Read before the West Virginia State Medical Society.

How is sympathetic pain produced? How does it happen that the whole fabric of the nervous system may sympathize with an affection of a particular nerve, as in traumatic tetanus? How can the peculiar irritation, excited by a foreign body remaining lodged in the flesh produce convulsive twitches of the muscles and general convulsions? How does the general nervous system become involved in convulsions by the irritation of an adherent prepuce? Pathologists have as yet, I believe, failed to answer these and similar questions.

On the subject of peripheral irritation, Dr. Lewis A. Sayre has recently aroused and directed the attention of the medical public to some of the consequences following adherent prepuce. It is not the normal agglutination of the prepuce to the glans, but an entirely different character of adhesion, described as "an absolute adhesion of tissue to tissue" where "the glans and prepuce become consolidated into one mass," which produces the disasterous results. The adhesions I have met with, however, were not thus consolidated, but were quite firm, requiring decided force to strip the mucous membrane from the glans.

It seems that these adhesions occasion constant, persistent irritation, and this, being long continued, produces a peculiar characteristic condition of the nervous system, the exact pathology of which is as yet unknown. The effect of this constant irritation of the glans is to produce great restlessness and fretfulness, loss of sleep, "loss of

controlling power over the muscles," and convulsions, with "inability to speak correctly, and, at length, inability to walk."

These facts, now being overwhelming substantiated by the highest hygienic authorities the land over, have been patent to the reading portion of the profession for only a very few years. Dr. Sayre himself only met with it in 1870 for the first time, and he alleges that no author except himself has ever even referred to the subject.

Adherent prepuce may be met with either alone or accompanied with a too short frænum, a phymosis, or a deposit of excretion behind the glans. All of these troubles, however, may be met with in the same case. Adherent prepuce is the usual accompaniment of phymosis.

A small preputial orifice, in a case free from abnormal adhesions, may indirectly prevent a deposit of excretion. If the preputial orifice be less than that of the urethra, the egress of urine cannot be as rapid from the former as from the latter, consequently, in every effort at micturition, the urine is forced backward under the foreskin, and when it escapes may carry with it the excretion. But I have seen the purputial orifice blocked up, and the foreskin (child's) distended to the size of a pigeon's egg with this softened and semi-dissolved accumulation. These conditions existing, seriously interfere with the egress of the urine, and give rise to distressing and protracted urinary tenesmus. Persistent priapism is induced and kept up at the same time by the irritation of the glans.

Among the direct untoward results of these repeated and protracted paroxysms of urinary tenesmus and priapism, a prolapsed rectum and hernia may be enumerated. Likewise, an enfeebled bladder and diseased kidneys are very likely to ensue. These local affections occasion suffering, but their reflex influence on the whole fabric of the nervous system amounts to torture.

An operation for phymosis is the primary step towards putting a stop to this whole train of grievances. The swelling and turgescence subside, and the organ becomes flaccid the moment the prepuce is opened up. This, too, is the key that unlocks the approach to the difficulties of a short frænum, to an adherent prepuce, and to a deposit of excretion.

This operation may be performed by dilating the *os preputii*, by circumcision, or by splitting up the foreskin.

The latter has many advantages over either of the other methods. A probe, a small grooved director, and scissors having a narrow and sharp pointed blade, are the only essential instruments in operating for phymosis. The narrow, sharp pointed blade of the scissors having entered the *os preputii*, let it pierce the prepuce on its dorsal aspect at the upper end of the intended split, and the foreskin is laid open at one sweep. To avoid the conversion of a phymosis into a paraphymosis, the skin and mucous membrane of the prepuce should be split up to a point *beyond* the space behind the corona glandis. Lateral traction on the membrane by an assistant materially aids the operator in separating the adhesions. These usually may be promptly broken up by the scalpel handle, but the point of a knitting-needle or non-flexible probe is more appropriate. The Hebrew *Mohel*, (circumcisor) when administering the holy rite of circumcision, does not employ sutures; but in this operation they should be used, to keep together the mucous membrane and skin, and to facilitate cicatrization. With light water dressings, cicatrization usually is kind and prompt.

The following non-selected cases, occurring in my practice within the three months last past, will now be given, illustrative of the advantages of operative interference. They are given in the order in which they came under my observation, and within the time mentioned, so as to avoid making this paper more extended than would be appropriate upon this occasion.

Case 1.—February 16, 1877, W. A. S., twenty years old, tall in stature, fleshy, of sanguine temperament, called upon me on account of a preputial tumor. Patient's earliest recollections place him in the nursery, fretting with persistent priapism, which at length, as he alleges, prompted him, while he was yet "a small boy," to self abuse. This, as an alleged palliation, was practised more or less up to the age of seventeen. About that time he noticed a hard, non-painful tumor, under the right side of the prepuce, which alarmed him and influenced him to abandon his former practices. While in the act of coition, in the winter of 1876, severe pain was experienced in this tumor, which bled for some time thereafter. This same kind of pain was always experienced under similar circumstances, but, subsequently, it was not followed with

bleeding. During the summer and fall of 1876, there was occasionally a yellowish watery-like discharge from the *os preputii*, which would promptly disapear, either spontaneously, or under the use of local applications.

Inspection revealed a case of congenital phymosis, and an organ well developed. A tumor, nearly the shape and about the size of a small peanut, occupied the mucous surface of the foreskin over the right side of the glans The induration of the tumor, as felt through the integument, suggested that it might be an oblong, hardened smegma. An operation for phymosis was advised, which was, on the 18th of February, performed by Dr. John Frissell. The foreskin having been opened up, gave a full view of its mucous surface. Here were two open fungoid ulcers; one over each end of the tumor. The occasional discharge from the preputial orifice was now accounted for. These ulcers over a tumor of nearly stony hardness created a suspicion of its malignancy. Every vestige, as we supposed, of the tumor and of the suspected tissue surrounding it were carefully removed, and the wound appropriately dressed. Much swelling of the parts followed the operation. Subsequently, a watery discharge escaped from the entire surface of the wound, and in a few days a sprouting fungous mass, which became daily broader and more elevated, surrounded the glans. The edge of the integument bordering the fungoid mass was warped, nodulated and hardened. Fears were now entertained that amputation would be demanded.

In the meantime, the tumor had been placed in the hands of Edmund Bocking and H. R. Hartung, microscopists, for examination. Their investigations discovered cancer cells in abundance.

That cancerous disease, in apparently healthy subjects, may, and often does, follow some trivial injury is now generally if not universally conceded.

The repeated improper manipulations of the organ for a series of years, as happened in this case, would, doubtless, have the effect to bruise the prepuce. Indeed, in this case the patient seemed to be conscious of having inflicted self injury. He confessed to having apprehensions that the tumor was caused by his previous "self-abuse."

Under the use of hydrarg, iodidi and Fowler's solution, together with inunctions of the groins with ung. hydrarg, and liberal applications of creosote over the fungoid mass,

it gradually disappeared. To correct the unhealthy discharge from the surface of the sore, and to facilitate healthy cicatrization, the following wash, diluted more or less with water and applied by means of strips of old muslin, was used as a dressing subsequent to the applications of creosote, to-wit:

℞. Tinct. Gallæ, oz. ii.
Tinct. Myrrhæ, oz i.
Tinct. Opii. dr. v.
Creosoti, dr. i.
Acid. Acetic, dr. ii.

M. Sig. Wash.

This wash has, for a series of years, been used by Dr. Frissell as an antiseptic and detergent dressing for cancerous surfaces, and which, in this case, gave great satisfaction. Under its use, with the constitutional treatment first mentioned, the surface gradually cicatrized. The constitutional treatment will, of course, be continued for some months.

Case II.—Was summoned, March 14th, 1877, to T. J. D.'s child, aged two years, in convulsions. Their violence had subsided before my arrival. Found patient slightly flushed, nervous, restless, fretful, and at intervals had some spasmodic jerking of the limbs. Learned that within the last few months he had had several similar attacks occurring sometimes at night. He would "struggle, throw back his head," and then would lay partially insensible for from ten minutes to half an hour. Directed an aperient and some doses of bromide of camphor. Two days afterward the child was reported doing well. The father, without, however, suspecting that it had anything to do with the child's convulsive attacks, diffidently referred to the fact that the child had frequent "spells of fretting and crying," at which times he would come saying, entreatingly, "Dick hurts, Dickie hurts," indicating that there was "something wrong down below." This fretting and crying were persisted in until the diaper was loosened, whereupon erections were invariably observed. The organ having been liberated the child seemed to get temporary relief, and the fretting and crying would gradually pass off for the time being.

This brief reference of the father to what had been observed called my attention at once to the true character

of the case, which I am frank to acknowledge had been previously undetected. Upon this data I formed and expressed the opinion that an operation was essential for the child's relief.

This child had been seen by other physicians on the occasion of its previous convulsive attacks, whose treatment and whose course in the case, also, had been founded upon an incorrect or faulty diagnosis.

Doubtless, many medical men, some, perhaps, present on this occasion, can "now look back to cases treated with little or no satisfaction, in which many of the characteristic symptoms were prominent, who passed from the care to one physician to another equally misled, or unled, as to the cause, until finally abandoned to helplessness and death!" To avoid results of this character, the treatment and course to be pursued in any given case should always be based upon a careful, systematic, and well digested personal examination.

Examining this case on the 18th of March, I found it to be one of adherent prepuce *without* phymosis. In the preputial orifice there was no insufficiency. The foreskin was ample, but not redundant. Its membrane was firmly adherent to the entire surface of the excited and puplish glans to a point within about a line of the urethral orifice. Dr. Frissell assisting, the adhesions were carefully detached, and the glans, from which there was slight bleeding, were covered with carbolized glycerine. Subsequently, the intelligent mother had the management of the case, which promptly recovered.

Case III.—It was on the 19th of March of 1877, that I was called to J. M. B.'s infant, aged five months. The child was hoarse, had some cough, and was very fretful. I prescribed a diaphoretic expectorant and quarter grain doses of bromide of camphor. On the following evening I found the child still crying and restless, as on the previous day. And now learned that during the two months last past he frequently took crying spells, lasting for an hour or two, which were most troublesome at night, and which were supposed to be the result of colic. But the present attack continuing, as it did, night and day, it was thought that it must surely be occasioned by ear ache. The restlessness and "strange motion of his head" were in evidence of this opinion. Examining the head, throat,

lungs, bowels, by exclusion, I arrived at the opinion that the cause of the child's trouble was lower down. By examination of the parts, my opinion was verified. The necessary means to be employed for the child's relief having been explained, I proposed to operate on the morrow. The father, with quizzical glances at the mother, jocosely remarked, that the proposed operation was a new and very unique method of relieving ear ache? But he insisted that if an operation would bring relief (the child crying all the while), that it should be performed at once. Assisted by Dr. Frissell, the operation for phymosis and adherent prepuce was performed the same evening by gas light. In these minor operations I have never used any anæsthetic. Directly after the operation the child took its satisfaction of the breast, which it had not done during the previous twenty-four hours. In less than half an hour the child was enjoying a quiet sleep. It did well.

Case IV,—Was William Henry S., aged six years; spare, pale, cachectic in appearance; appetite capricious. Saw him November, 1875. The prepuce was greatly distended. It was tense, but without any evidence of inflammation. I had seen phymosis with many and varied complications, but this, to me, was something new. By grasping the organ and making pressure as in the act of pressing milk from the udder there escaped from the small os preputii, like very narrow tape, the accumulation of softened excretion. The diminutive opening rendered this process of emptying the prepuce rather difficult and protracted. Inasmuch as the parents would not consent to an operation at that time, this seemed to be the only means of affording even temporary relief. At length, however, the work was accomplished. I did not see this case again until April, 1877. The excretion did not again collect. Patient continued to have erections, and great trouble in every effort at micturition. And these efforts were frequently unsuccessful—tantamount to retention. The time required to complete the act depended very much on circumstances, but was, usually, from ten minutes to half an hour. His efforts to evacuate the bladder were accompanied with severe urinary tenesmus. This provoked rectal tenesmus, and always compelled an evacuation from that direction. The urine was often passed *guttatim*, never *pleno rivo*.

The urine at times, after these unsuccessful efforts, escaped in the bed involuntarily. Nightly he was aroused crying with priapism. "He had a queer way of walking," which was stooped, and knees partially flexed, as seen in an old man. His walk was zigzag, tottering, irregular; he fell down often; a misstep or other trifling cause sent him sprawling. An operation was immediately called for, which was performed April 1st, 1877, by Dr. Frissell. About one year and a half had elapsed since I first saw the case, and squeezed out the softened excretion, at which time there certainly were no adhesions. When the prepuce was opened up, we found firm adhesions all over the surface of the glans. These were carefully separated, and the frænum was cut. There was no deposit behind the glans. The various difficulties ceased at once; cicatrization was rapid. The child now (two months after the operation) is cheerful, retains and makes water properly, eats well, sleeps well, walks erect, and is as active and safe-footed as other children.

Case V.—Was called April 2d, 1877, to see H. F. C., an infant, aged three months. I was informed that the child was very colicky and had hernia. When inquiring after the rupture, the erections and vibrations of an unnaturally large and phymosised organ attracted the attention. From birth this child took "spells of crying," which continued for hours. For days and nights in succession "he would be very good." Again the paroxysms of crying would continue for days and nights successively. The priapism first attracted attention when the child was about three weeks old. the paroxysms of crying and the erections were synchronous. Against the wall, in the sitting room, there was a convenient shelf, which had been prepared expressly "for the baby." This shelf contained a teaspoon and vials of all the different kinds of carminatives and soothing syrups. These were in daily and nightly demand. But the catalogue of carminatives and soothing syrups had been exhausted in vain. The crying and priapism, accompanied with tenesmus, had developed a left scrotal hernia. Dr. Frissell assisted in operating for phymosis and adherent prepuce on the following day. The erect organ became flaccid the moment the prepuce was opened up. When the adhesions were detached, an accumulation of smegma was removed from behind the glans.

On the third day after the operation, a firm transparent deposit of lymph covered the glans and mucous membrane of the prepuce, which was stripped off at the same time the sutures were removed.

The removal of this deposit left bleeding abrasions over the glans. These, under water dressings, rapidly disappeared.

In answer to the inquiry: Does the child rest any better? the grandmother answered: "O, yes; he is a different child altogether; O, he's *so* good; he will lay and laugh and crow for hours; he wouldn't do that before *you'll bet*."

When called to a case of chorea, strabismus, or lameness in a boy, or learn that he stumbles and falls down frequently, I am certain to suspect the prepuce.

If I were called to a reputedly colicky infant, or one that passed nights in succession crying, fretting, rolling and tumbling, and did not fully satisfy myself as to the condition of his prepuce, I should feel that I had been derelict in my duty.

Skin Grafting for the Prevention of Contraction of Tissues in a Severe Burn.

By M. R. Speare, M. D., Rochester, N. Y.

May 10th, 1873, I was called in haste to attend a child of Mr. Love, æt. ten months, which had fallen against the cook stove while tied in its chair, and had literally roasted one side of its face before being released from its perilous position. After the usual application of linseed oil and lime water to sooth the pain, I applied bread and water dressings to hasten the separation of the burnt tissue, which involved the whole cheek, almost touching the lower eye-lid upon that side, and the angle of the mouth. Sloughing took place in a few days, leaving a clean but rough and angry sore. As there was a strong probability of an ugly cicatrix following, drawing the mouth out of shape, and producing ectropion, I thought if by grafting skin upon the sore I might start the cuticle from the centre to approach that of the border, it would relieve the tension, and give a better looking cicatrix than if allowed to heal the natural way.

Accordingly I did so, obtaining the pieces of skin from the father's arm. I kept up the grafting of about a dozen pieces at a sitting for two weeks, at the end of which time about twenty five little star-like islands had made their appearance upon the sore, approaching the border rapidly. In fact, the transplanted skin grew faster than the natural, so that in a few weeks the growth had become complete, leaving a scar of course, but no ligamentous formations. No ectropion, no disfigurement, except a plain, smooth, firery red cheek. Without the operation the result would have been far different, without a doubt, as the sloughing was so deep into the tissues.

Acute Catarrh of the Middle Ear.

By W. R. Amick, M. D., Cincinnati, Ohio.

Thomas S., has just recovered from a severe attack of iritis of the left eye. Eight days ago he caught cold. Had sore throat and a sensation of fullness or thickening of the mucous membrane of the nose. Immediately following this he had pain in the ear, which was so severe that he could not sleep at night.

On examination found the internal portion of the external auditory canal very much injected and reddened. It was so sensitive that the speculum could hardly be used. This injection extended on to the integumentary layer of the drum membrane, and along the handle of the malleus. The central portion of the membrane retained its normal color, but the light spot was smaller than normal, existing simply as a round dot. The membrane appeared to be slightly pressed outward. The pain was spoken of as "down deep in the ear." He also stated that there was something in the ear, and if it was taken out he would be all right. When told that there was nothing in the ear, but that this sensation was due to the inflammation, he scarcely believed it. He insisted that there was "something in the ear," for "he could feel it," and if his ear was syringed he thought it would remove the trouble, and he would then hear as well as ever.

He was annoyed with a singing sound in this ear, sometimes it partook of a tinkling nature. Could not hear the watch except with pressure. The posterior wall of

the pharynx, tonsils, and soft palate was considerably injected.

His bowels being costive the treatment began by ordering a saline cathartic. A gargle, consisting of pot. chlor. ʒi, ferrum dial. ʒij, ad aq. dest. ℥ij, was ordered to be used four times a day. The ear was treated first with the eustachian catheter and air bag, warm applications being used to relieve the severe pain. Under this treatment the acute symptoms passed away in forty eight hours. Then an astringent of sulphate of zinc was applied to the eustachian tube and middle ear. This was continued for a week, when he was discharged. The injection had passed away, there was no more fullnes or noises in the ear, and he heard the watch at three feet.

In these cases leeches answer a very good purpose. In fact, the majority of cases of acute catarrh of the middle ear, if seen in time, can be relieved of the severe pain by the application of a few leeches and the instillation of warm water. If the membrane is not ruptured, and the pain is due to pressure from a collection of pus in the cavity of the tympanum, it can frequently be allayed by inflating the ear.

By this proceeding the current of air passes into the middle ear, and by its reverse action forces the purulent material downward through the eustachian tube. After it is cleared of its contents, astringents can be applied in a similar manner.

(Concluded from page 546.)

The Contagium-Particles of the Eruptive Contagious Fevers, their Nature and Mode of Action.

By I. E. Atkinson, M. D.

It would seem, therefore, that there may be perversions of the molecular motion of protoplasm. The contagious particles of the eruptive fevers are claimed to result from various modifications of this molecular motion.

The argument in this article will be in support of the view that these altered particles of protoplasm unite with the normal protoplasm of the body, after the manner of the reproductive cells, conferring upon it their own properties. And, although positive evidence of the union of

the ordinary protoplasmic elements, as in reproduction, has not been attained, we are compelled to adopt some such theory in accounting for the development of this protoplasm into the various tissues. Recklinghausen has advanced a theory respecting the conjugation of cells, referred to by Stricker, which, however, is not available to me. The following quotation from Rindfleisch, however, will illustrate the necessity for this hypothesis: "It would seem therefore . . . . . that we are driven to assume that an embryonic cell can only develop into an epithelial cell when it is in contact with one of the latter kind. We must, perforce, adopt the theory of a sort of '*epithelial infection.*' This theory, indeed, would necessitate a two-fold application: for supposing such infection to occur when embryonal cells, colorless blood-corpuscles, etc., are brought into contact with a permanent epithelium, it must likewise occur when, conversely, epithelial elements are brought into contact with a tissue composed of embryonic cells. The latter process, indeed, may actually be observed in the metastasis of cancer to lympathic glands." (Path. Hist. vol. i. p. 107, N. Syden. Soc. Trans.) It is, of course, impossible for us to conceive an "infection" or "some sort of action of the older cells upon the immigrants," without the transference of a something from the infector to the infected.

The contagium particles then are, to use the language of Dr. Ross, "living in the sense of being portions detached from a living being, ... not germs capable of giving origin either to higher forms of life or to organisms like themselves in an organic infusion, but anatomical units, modified and individualized by a diseased process, and capable of impressing upon the healthy organism with which they come into collision a succession of changes similar to that which preceded their own modification in the body from which they were detached." (Graft Theory of Disease, p. 29.) As Dr. Ross remarks, "the union of the sperm cell and germ cell in ordinary reproduction will strike every one as more or less analogous to the case in hand;" he considers, however, that the phenomena of grafting afford a still more complete analogy to the condition under consideration. This they certainly do; but as it is impossible to say to what extent the processes of grafting differ from those of ordinary reproduction, the latter will be made use of in illustrating the *modus operandi* of contagium.

Let us contemplate, then, for a moment, the conditions under which ordinary reproduction occurs. In the first place, in order that the contact of the sperm cell with the germ cell may be fertile, it is necessary for them to be similar in nature, that is, they must have been detached from parent stocks of a common species, or, at least, genus; at the same time they must also possess some points of difference, some dissimilarity in vitality or molecular motion, since it is almost impossible to fructify the reproductive cells of the same hermaphrodite plants, while the same cells will readily accept the sexual element of another plant of the same species. This is also true of all the higher organisms, in which the immediate descendants of a common parent produce reproductive cells which respond feebly or not at all to each other. As has been shown by several writers, it is apparent that although the germ cell and sperm cell must, on the whole, have a considerable degree of similarity, they "must also have a certain degree of dissimilarity, either in the matter or molecular motion, before the evolution of a new being is initiated." (Ross, Graft Theory of Disease, p. 37.)

Applying this reasoning to the union of the contagious particle with the normal protoplasm, we can understand that the result of union may be a perverted vitality, a morbid process. At the same time it is apparent that the organism escapes any deleterious effects from the detached normal protoplasm of other organisms, to which it must be constantly exposed, because of the not sufficient degree of dissimilarity, it being "only after the detached particle has been previously modified and individualized by what we call a diseased process, that its collision with a healthy body would produce any marked result." (Ross, Dis. Germs, p. 38.)

To turn now to the phenomena of the eruptive fevers: it is a well-known fact that the parts of the organism most prone to suffer from the onsets of these diseases are the skin, mucous membranes, and blood; moreover, just in proportion to the severity of the attack do we find that these parts are affected, except in cases where the blood is so overwhelmed with the poison that the other tissues have no time to become invaded. Again, it is apparent that certain portions of these parts, or of the individual particles composing these parts, are, by prefer-

ence, selected to make manifest the diseased action; for example, in small-pox of a mild character the pustules are scattered at wide intervals over the body, the intervening spaces being free from objective symptoms; as we consider the more severe forms of the disease, we find the pustules closer and closer together, until, in the most confluent varieties, nearly the whole integument is occupied by the eruption; while intensity of eruption generally indicates intensity of disease. Then, in ordinary small-pox, the anatomical site of the initiatory papule is not in the papillary layer of the skin, but involves the rete mucosum of the epidermis. In the most severe forms, as in pupura variolosa, the eruption begins in the cornium. (Erisman. Neuman's Skin Diseases, p. 95, Amer. Trans.)

In measles the eruption appears with patches of unaffected skin interrupting it in every direction; while in chicken-pox, that mildest of the eruptive contagious fevers, the vesicles are usually few and far between; and in all of these fevers a preponderance of the eruption in certain parts is to be observed.

While it must be confessed that the exact processes by which these various morbid conditions are produced will probably ever remain unrevealed to human eye, it seems to me that a fair conception of them is undoubtedly attainable.

The eruptive fevers, then, are made manifest by certain appearances upon the skin and mucous membranes which are distinctive of them; beyond certain alterations of epithelium and of the sub-epithelial layers, in the other tissues no specific morbid appearances are met with; the blood alone showing evidence of great disorganization. Let it now be remembered that the contagium particle is claimed to be a detached portion of the living matter of the organism; and that in order to unite with the living matter of a new organism, it must be both similar and dissimilar to that matter—similar in being essentially derived from the same kind of tissue, dissimilar since that tissue must belong to a different individual. Now, since the disease will fall principally upon the blood, the papillary layer of the corium, the rete mucosum of the epidermis, and the mucous membranes, whose structure is homologous with that of the skin, it is necessary that the living matter of these tissues must be more involved than any

others; these are the epithelial cell, the connective tissue corpuscle of the derma, and the leucocyte or white blood-corpuscle.

It has already been noticed that there is a direct genetic connection existing between these varieties of protoplasm, the leucocyte being the oldest in lineal descent, the others differing from it in nature as they undergo the specific infection of the parts to which they are distributed during the processes of nutrition. Now, it is exceedingly probable that the contagium particle was originally detached from the protoplasm of an epithelial cell, or cell from the papillary layer of the corium, and that it is usually with these that it unites when initiating the poisonous effects of disease; that it may also affect the cells of deep layers of the corium and the leucocytes, simply because these are in the direct line of descent; while the cells of the other tissues of the body, having already undergone the specialization of the parts to which they have been distributed, have become too much differentiated to enable them to become affected by the contagium particle.

Next, to explain the immunity which certain portions of these tissues, principally affected by the eruptive fevers, enjoy from the morbid manifestations, a ready answer is at hand.

It is easily conceivable that the contagium will most readily unite wIth those parts of a strange organism that are in essence most similar to the part from which it was detached; for example, a particle detached from an epithelial cell with an epithelial cell, that from a leucocyte, with a leucocyte, etc.; and it is also easily conceivable that that individual will be more apt to die upon whose blood the contagium acts with the greatest stress, than he whose epithelium is the main point of attack. Granting this, we have a key to the anomalous conditions of the action of contagia. We can account for the fact that a malignant eruptive fever may result from exposure to the mildest case of the same disease—where death results from blood infection, before the usual skin symptoms have had time to manifest themselves. In every case, however mild, the blood is implicated as well as the skin and mucous membrane. Contagium particles, detached from any of these tissues, may escape from the body: now, if a particle detached from a white blood-corpuscle enters the system of another person, it will be more apt

to produce its effects directly upon the living matter of that person's blood, than would the particle detached from an epithelial cell, which would by an elective affinity attach itself to an epithelial cell.

Having seen that contagium affects certain tissues and parts of those tissues by preference, the next point to be determined is how it affects them. The knowledge gained by the consideration of the nature of these particles and of the tissues upon which they are implanted and perform their offices, enables us as well to form some definite idea as to the mode in which these effects are produced.

We have seen that, as a matter of fact and easy demonstration, certain portions of the same tracts of tissue are more strenuously affected than others, while some seem to entirely escape morbid action. This, I say, we recognize as a fact. Now, this fact can be explained by supposing that when the contagium particle is brought into contact with any portion of protoplasm, whose intimate composition is not of such a nature as to be capable of being impressed with the characteristics of the particle, that either there exists a natural repulsion between the two, or that if a union takes place, the condition of the healthy particle is such that the morbid motion of the other is destroyed, or is converted into that of the rest of the protoplasmic mass with which it has become incorporated.

Next, take those healthy particles which are temporarily influenced by the contagium, but which subsequently recover the power of accomplishing their usual functions, having, however, the stamp of the contagium indelibly impressed upon them. Here we witness a struggle for supremacy between the two combining portions of living matter—the molecular conditions being such that after their union the weight of the healthy prevails over the morbid action, the influence of the latter playing a subordinate role in the subsequent life of the cell.

Lastly, we have to consider those cells of the body whose power of further development is completely destroyed by union with the disease-germ, whose mode of life is dominated by that of the particle that has united with it, and whose functions are thereby degraded entirely to the level of those of the latter. It is the behavior of these under the action of contagium which probably gives rise to almost all the symptoms of the given contagious fever. It has already been stated that degradation in

power of development is accompanied by increase of the reproductive powers of protoplasm. Now, where the protoplasm of the body becomes pervaded by the perverted molecular motion of the contagium particle, in losing the properties inherent to its normal condition it acquires this increased reproductive power; as a consequence, however, of this degradation, the particles thrown off are unable to attain the same degree of development as the original healthy particles from which they were derived; this being the case, the blood and tissues must rapidly become invaded by an enormously increased number of protoplasmic particles affected by the morbid process.

It is a fact, stated by competent authority, that in any acute inflammatory process there is apparent in the organism a great increase of minute protoplasmic particles, which can only be distinguished from those of the eruptive fevers by their different behavior under experiments made upon other organisms; in all appreciable, visible characteristics they are identical.

There accompanies this rapid proliferation of germinal matter a corresponding increase in the body temperature; and it is highly probable that in those instances where the increase in the body heat is sudden and excessive, with death following at an early period, that the proliferation goes on, until the capillaries become so overcrowded with these particles that they ultimately become completely occluded, and the life of the individual ceases. This is the mode in which, as asserted by Dr. Beale, death takes place in the eruptive fevers.

Of course, where there are in the body a sufficient number of cells whose life can be so altered by the contagious particles that this plugging of the capillaries will necessarily result, death is inevitable, the person is beyond remedial assistance; but where the number is not sufficient to produce this vascular occlusion, and death from hyperpyrexia alone averted, the disease, unable to find any additional germinal matter for which it possesses an affinity, becomes exhausted; or, in other words, the contagium having attached itself to all the protoplasm with which it was able to unite and which it could degrade, leaves unaffected or rather undegraded a sufficient quantity for the maintenance of the life of the individual; itself, incapable of higher development, becoming inert,

starved, as it were, is thrown off from the body, carrying with it all those portions of the body degraded to its own level, and leaving behind for the purposes of the economy those portions which were not capable of undergoing its infection, along with those which were able to prevail against it.

This, then, is, it seems to me, a philosophical explanation of the behavior of the contagious particle, and of the matter upon which its effects are produced. There remains, now, to be accounted for the immunity from subsequent attacks of the same disease afforded an individual by a single invasion of an eruptive contagious fever. Thanks to the points already considered, this section of our investigation may, I think, be briefly and satisfactorily disposed of.

It has been stated that all the parts of the tissues of the body, whose molecular motion was such that the consequence of their union with the contagious particles was to degrade them until they were unfit for their normal functions, were thrown off from the body, and that there were left behind only such portions as were able to repel the contagia, or, having united with them, were able, while undergoing a certain modification themselves, to also modify the life of the contagia, so that the union would result in matter, somewhat altered it is true, but not to such an extent as to interfere with the performance of proper normal function. The body will thus have gotten rid of all matter capable of being degraded by the contagium of the given specific fever.

In the course of the subsequent nutrition of this individual, there must be a constant and almost unvarying supply of new material introduced from without. It has been seen that within the system, and endowed with life, this material is termed protoplasm; now the mere fact of proteinaceous compounds gaining access to the circulation does not confer upon them the properties of this protoplasm, matter which is so essentially living that it is able to exhibit the qualities of independent life subsequent to its withdrawal from the body. On the contrary, it must be, that as these matters enter the circulation they may not attain the dignity of protoplasm until life shall have been conferred upon them by their incorporation with the protoplasm already existing in the body, with the buds and gemmules split off from the larger masses, and which,

thus nourished, increase in size and develop the properties of their progenitors.

Understanding then that these buds and gemmules are all descended from the protoplasm that has already resisted or been modified by the especial contagium particle, it is perfectly evident that they and their descendants must possess the same qualities of resistance. At the same time it will not be difficult to imagine that this condition, being one opposed to the perfectly normal life of the cells of the body, may, after a time, in consequence of a steady and persistent struggle to regain the condition enjoyed before infection, be receded from, and the individual again acquire his susceptibility to the same eruptive fever that he has already experienced.

In the same manner may we account for the fact that the occurrence of the diseases in the parent does not necessarily or usually confer immunity upon the offspring; that a certain protection is conferred, we know, since the eruptive fevers almost always produce their most dire effects upon virgin populations. The history of epidemics in the Pacific islands exemplifies this. It is even probable that several diseases, the causes of dreadful mortality in in centuries gone by, have dissappeared in consequence of an immunity gradually inherited. In spite of this, however, it is very probable that in the reproductive processes the inheritance of perfectly normal molecular motion tends to reassert its superiority over that of a recently acquired modified motion, and that it returns to the mode of life that appertained to the parent previous to the occurrence of the eruptive fever, just as the parent would return, and sometimes does, were his vital processes as active.

Hot Water a Remedy for Post-Partum Hemorrhage.—Dr. G. Jacobi, late graduate of Bellevue College, now assistant of Professor Schroeder, in Berlin, writes to his preceptor, Dr. Waterman, as follows: "I attended, last night, in the lying-in-hospital, a case of profuse post-partum hemorrhage, which I was unable to control with the usual means, and had to send for Professor Schroeder, who immediately arrested the bleeding by an injection of hot water, 50° C."

Selections.

Grounds for Considering Acute Pneumonia an Essential Fever, and not Purely a Local inflammation.

By Austin Flint, M. D.

Acute pneumonia, in the nosological systems of the present, as of the past time, is placed among the local diseases; and in regard to certain questions, especially in relation to blood-letting, it has been, and is now generally considered as the type of a purely inflammatory affection. The object of the paper which I shall submit to the Society is to show that this is a false view of its pathology, and that its proper place in nosology is among the essential fevers. That pneumonia is an inflammatory affection, I do not deny. It is the local manifestation, and furnishes the anatomical characteristics of a febrile disease, sustaining to the latter a relation analogous to that which the lesions of the solitary and agminated glands of the small intestines sustain to typhoid fever. I propose as a name for the disease pneumonic fever. This name, if it established that the disease is not a purely local inflammation, is as appropriate as the name enteric applied to typhoid fever, or the name cerebro-spinal fever to the disease more commonly known as cerebro-spinal meningitis.

I am perfectly aware of the duty of brevity in a paper to be read at a meeting of this Society, the sessions of which are short, and the number of papers submitted usually large. I shall present the grounds for considering pneumonia essentially a fever, and not purely a local inflammation, as concisely as possible, avoiding any discussion of the points which will be stated.

In order not to expose myself to the imputation of assuming to advance a doctrine altogether new, I wish to premise that the dependence of pneumonia on a morbid constitutional state is a view which, as I suppose, many, and perhaps most, physicians hold. This view, indeed is, applicable to a considerable proportion of the diseases which are reckoned nosologically as local. Of late authors, Juergensen goes further than any with whose writings I am acquainted. This author holds the pulmonary inflam-

mation to be merely the chief symptom of a constitutional disease; that the morbid phenomena are not due to the local affection; that a special cause is indispensable, and that pneumonia belongs to the group of acute infectious diseases. These assertions are almost, if not quite, equivalent to an enunciation of the doctrine expressed by the term pneumonic fever. The arguments offered by Juergensen apply fully to this doctrine; but there are cogent considerations to which he does not refer. In 1866 Dr. Wm. H. Draper, of New York, read to the Academy of Medicine a paper on the treatment of pneumonia, in which he maintained that the pulmonary lesion is a sequence, in point of time, of the pyrexia; that it represents a conservative process by which a *materies morbi* is eliminated from the circulation, and that there is presumptive evidence of the presence of a specific poison in the blood of persons suffering from this disease. I quote from his paper the following: "These considerations certainly lend support to the theory that pneumonia is something more than a local disease, and is rather an essential fever, having a characteristic lesion like small-pox or scarlet fever." I have not taken pains to seek in medical literature for similar expressions of opinion. Doubtless they might be found; still, the fact remains, that in our systems of nosology, our treatises on pathology, our text-books of practice, our lectures on medicine, and in medical conversational litercourse, acute pneumonia is recognized as a purely local affection. It is, perhaps, superfluous to premise that by the term acute pneumonia I include only the so-called lobar form of the disease, the form distinguished by German writers as croupous, not embracing broncho-pneumonia nor embolic pneumonia.

The grounds for considering the disease an essential fever relate to its morbid anatomy, its etiology, its clinical history, and its treatment. Following this order, the points which I shall make I will embody, for the sake of brevity, in a series of simple statements or propositions.

1. In relation to the morbid anatomy of pneumonia, the quantity of exudation, amounting to from one to two pounds, if a single lobe be affected, and reaching four pounds if the affection embrace an entire lung; the probable derivation of this matter from the blood in the branches of the pulmonary artery; the removal of the exudation by absorption, leaving the air-vesicles intact;

the extension over a lobe by degrees, the progress often being slow; the invasion successively of a second and a third lobe in a certain proportion of cases, and the laws of the disease, as regards the greater liability of the lower lobes, and of the lower lobe of the right lung—these are points which, to say the least, are suggestive of dependance on a constitutional morbid condition, the latter being essentially the disease. It is not easy to reconcile the pathological facts just stated with the doctrine that the products in pneumonia are the results solely of a local inflammatory condition; and if a prior constitutional condition be essential, in view of the symptoms of the disease, that condition is a fever. In some regards the anatomical characteristics of pneumonic fever bear a close analogy to those of typhoid fever.

2. Etiology furnishes support of the doctrine which I advocate in two points of view, namely:

First, the local affection is never produced by local causes; and, second, all the knowledge which we at present have of the causation is in favor of the primary actions of the cause or causes being constitutional.

Acute lobar pneumonia is always developed irrespective of any intrinsic agencies acting directly upon the pulmonary organs. Agencies which it might be supposed, *a priori*, would be followed by the disease, fail to produce it. Contusions, however violent, and penetrating wounds of the chest, never give rise to acute lobar pneumonia. It does not follow the diffusion of pus from empyema or an hepatic abscess. Circumscribed gangrene of lung does not lead to it. In bronchitis affecting the small bronchial tubes the inflammation may extend to certain lobules, producing local effects, however, quite different from the anatomical characters of lober pneumonia, the latter never occuring, nor does it ever occur, as a sequence of acute pleurisy. Jeurgensen does not make too strong an assertion when he says that "croupous pneumonia can no more be produced by the excitants of inflammation than can the characteristic intestinal lesions of typhoid fever."

Pneumonia, as is well known, is not infrequently an intercurrent affection in the course of other essential fevers, namely, typhus and typhoid fever, measles, diphtheria, etc. In these instances the determining cause must be constitutional, and yet, as the affection is only an occasional complication, the determining cause involves

something which does not necessarily pertain to these fevers. This something, it is reasonable to conclude, is pneumonic fever. Hence, it follows that pneumonic fever may be associated with other febrile diseases. The blending of different fevers may be considered at the present time as a well established pathological doctrine. As an example with which all of us are familiar is the typho-malarial fever.

It is evidence that pheumonia is a constitutional disease (and if so, it must be an essential,) if it involves a specific causation. A specifie cause, with our present knowledge, is not demonstrable; but this confession is to be made respecting other essential fevers—for example, malarial fever. A conclusion can only be reached by the logical force of facts. Certain of these facts belong to the morbid anatomy and to the clinical history. Etiological proof of a specific causation is afforded by the prevalence of the disease at certain seasons of the year, namely, the vernal months in this climate, and its comparative infrequent occurrence at other seasons. Proof is also afforded by the fact that the disease is far more prevalent in some climates than in others. In our country it is vastly more frequent in the Southern than in the Northern States. Still further proof is afforded by the fact that, at certain times and in certain situations in the South, it has been known to prevail to an extent entitling it to be called an endemic. To these facts it is to be added that at different periods and places the variations of the disease, as regards its phenomena and the rate of fatality, constitute a point of distinction from purely inflammatory affections, and affiliate it with the essential fevers.

3. Passing to the clinical history of pneumonic fever, the grounds for using this name instead of acute lobar pneumonia are hardly less substantial than those furnished by the etiology of the disease.

The chill, which is usually the first symptomatic event, is more pronounced than in the history of any purely local inflammatory affection. It is often as marked as in the cold stage of paroxysm of intermittent fever.

The fever which follows quickly rises, and often in a few hours becomes intense. It is not uncommon for the temperature of the body to be five or six degrees above the normal limit in from four to twelve hours after the attack. Now, this cannot be a symptomatic fever, for

within these periods, and often for two or three days, the pneumonic inflammation is so limited as not to furnish the distinctive and easily determined physical signs of the local affection. Contrast, as respects the intensity of the fever at the outset, pneumonic fever with acute pleurisy.

During the course of the disease the fever, as represented by temperature and other symptoms, has no uniformity of relation with the pulmonary affection. It is impossible to determine by means of the thermometer and by the pulse, together with other symptoms, when the local affection has extended over an entire lobe, or whether more than a single lobe be involved. What is true of typhoid fever, in respect to the influence of the intestinal lesion upon the febrile phenomena, is equally true of pneumonic fever.

As in typhoid so in pneumonic fever, defervescence is not determined by conditions which relate to the local affection. Defervescence sometimes begins and ends within twelve hours, or even less, and during this time the physical signs may show that no very marked change has taken place in the pulmonary organs. Pneumonic, like typhoid fever, ends from self-limitation; that is, it ends when the disease has finished its career. The duration of this career varies considerably, it is true, in different cases, but it is, nevertheless, self-limited. It is not uncommon for the career of the fever to end when there is much to be done in the way of resolution, before the restoration of the normal pulmonary condition is complete.

The analogy to typhoid fever, which in several points of view is apparent, is further shown by the frequent occurrence in pneumouic fever of what are known as typhoid symptoms. It is true these symptoms occur in various diseases; but I am warrنted in saying that they occur in pneumonic fever far more frequently than in any other disease, excepting, of course, typhus and typhoid fever. They certainly cannot be attributed to the interruption of the respiratory function, for they are rarely frequent in other affections which occasion greater disturbance of this function—for example, in pleurisy, capillary bronchitis, and asthma. They are undoubtedly due to the fever, irrespective of the pulmonary affection; and, in this point of view, pneumonic resembles typhoid fever.

Pneumonic fever differs from most local inflammatory affections, and resembles most of the essential fevers in the fact that when the career of the disease has ended, there is no immediate tendency to a relapse. In a large number of cases which I have recorded, in not a single instance was a relapse noted; and I cannot recall an instance in my unrecorded experience. Is there not in this fact solid ground for the doctrine that the disease is an essential fever? Another striking fact may be mentioned in this connection, namely, the pulmonary affection never persists in a chronic form. The forms of chronic pneumonia, that is, ordinary and fibroid phthisis, are anatomically distinct from lobar pneumonia; nor does clinical experience substantiate the opinion held by some that phthisis is a sequel of acute pneumonia It may be asserted of pneumonic, as of typhoid fever, that if death do not take place from either the disease, its complication, or its accidents, recovery follows without any risk of the persistence of the local affection in a chronic form.

4. The therapeutic influence of certain remedies and of antipyretic measures furnishes ground for the doctrine that acute lobar pueumonia is not purely an inflammatory affection.

As long ago as in 1861 I was led, by the results of the analysis of a considerable number of cases in which the sulphate of quinia was given to the extent of only fifteen grains daily, to the conclusion that this remedy exerted a marked curative influenee upon the disease. I can now bear testimony to the fact that, given in larger doses, namely, from tweuty to forty grains daily, this remedy, in a certain proportion of cases, renders the disease abortive, and that, when this result does not follow, the disease is often favorably modified in a greater degree than by smaller doses. There is reason to think that salicin, in like manner, has a curative influence; the relative value of the remedy not being, as yet, determined by clinical experience. Now, whatever efficacy belongs to these remedies, proceeds, evidently, not from any direct effect upon the pulmonary affection, but from a controlling influence over the pyrexia; hence sustaining the doctrine that the disease is an essential fever. Juergensen, Liebermeister, and other German writers claim, as a conclusion, based on clinical experience, that the reduction of the high temperature of the body by cold

baths, employed as in cases of typhoid fever, lessens the severity of the disease and the rate of fatality from it. Accepting this conclusion, it is further evidence of the correctness of the doctrine.

Assuming that there are grounds sufficient for adding to the list of essential fever *febris pneumonica*, or pneumonic fever, we may define the disease as follows:

It is a fever characterized anatomically by an abnndant exudative deposit in the air vesicles of a single lobe, or of two, and sometimes three, lobes of the lungs, with, in general, circumscribed bronchitis and dry pleurisy. It is a fever which rapidly reaches its maximum of intensity, and has a short career, the duration averaging about eleven days. It proves fatal chiefly in consequence of associated diseases, complications, or accidents, and the mode of dying is by asthenia. It is non-communicable, and depends on a cause, or on causes, specific in character, the nature of which is at present unknown, but having relations to season and climate. It sometimes aborts spontaneously; and it is in some instances arrested by remedies. If not arrested, it may be favorably modified, its duration abridged, and the danger to life diminished by treatment addressed, not to the pulmonary affection, but to the fever.

The doctrine which it has been the purpose of this paper to advocate is of interest, regarded simply from a pathological standpoint. It is, moreover, important in a practical aspect, leading the practitioner to regard the rational objects of treatment as relating to the essential disease, that is, the fever, rather than to its local manifestations, and in this way bringing pathology into unison with therapeutics based on clinical experience.—*The Medical Record.*

Fire-Proof Buildings.

To the Editor of The Sanitarian:—In your very interesting notice and article, in the January number of *The Sanitarian*, on the Brooklyn Theatre, and the great loss of life by that most awful and most horrible affair, you make very proper reference to the civil and State authorities, and how they "habitually neglect the means for

the preservation of human life throughout the State and the nation."

I desire to say, in few words, that none of the means and suggestions that have been made, growing out of that great, dreadful and dire calamity here in Brooklyn, for the safety in future of such buildings, such as fire-proof scenery, etc., offer or afford any protection or safety whatever. They are all mere expedients, which will fail in time of real need.

The only safety is in fire-proof buildings; buildings containing no combustible materials. This is simple, and puts the ax at the root of the great evil or difficulty; there is no safety in anything short of this. The State and city authorities should at once pass a law that all public buildings, city halls, court-houses, public schools, offices of record, churches and theatres, should be built fire-proof, without any combustible materials in them. The first cost will be something more, but in the end the cheapest. What would become of all the dear little people in one of our large public schools, with a population of five hundred or a thousand of these little folks, in case of a fire? How many could get out, and how many would have to stay behind, and be burnt up? Under this rule, there might be a less number of theatres built, but they would be of a better order and of higher character, and their entire safety would soon give them reputation and favor with the public.

The danger to life in burning buildings is from *within*, not from *without*. See the fate of the Havens family, at Fort Washington, N. Y., some years ago, and that of the Steiner family, in New York, recently. The great destruction and waste of property by burning buildings demands a new order of fire-proof buildings, as far as can be in all large and costly buildings, both in city and country.

In ten years past, twelve theatres and more than two hundred churches have been burnt in the United States, many churches of great value and precious memory; no money can or could replace the precious and valued memorials which perished with them. Within a few weeks three churches have been burned, one in Westchester, N. Y., of great value, with all its valued memorials, one at Morristown, N. J., and one in Vermont. Now, why should this great destruction and great loss of property and substance be continued and perpetuated, when it can

be easily prevented by the construction of fire-proof buildings? The country is better able to make fire-proof churches than to bear the loss of their destruction by fire.

I hope Mrs. Stewart and Judge Hilton will make the great memorial church at Garden City fire-proof; it can yet easily be done by changing the material of the inside work, making it of stone, brick and iron inside, instead of wood. It would be a great misfortune, in a few years to come, to have that memorial building swept away by fire. The Rev. Dr. Talmage, of Brooklyn, says the pulpit and the press can do a great deal towards reforming present evils. Let them begin on this, and they will make enough or save enough to Christianize the world, in the saving of public and private property from destruction by fire, to say nothing of the saving of life. E. F. Peck, M. D.

(Concluded from page 568.)

The Regulation of Prostitution.

The original ordinance of St. Louis, intended to judiciously control and lead to the repression, diminution and final extinction of the evil, was passed in July, 1870. This act was amended in July, 1871, and the reports comprise a period of two years.

I desire now, Mr. Speaker, to refer you to the table report of Captain McDonough, chief of police of the city of St. Louis, ending March 31st, 1872:

Total registration of prostitutes since the law came into force:

White, ...	1,766
Colored, ...	286
Total, ...	2,052

From July 25, 1870, to March 31st, 1871, 8 months:

Names registered, ...	1,284
From March 31st, 1871, to March 31st, 1872, . . .	703

A decrease of over 45 per cent. in 12 months, or 581 less than the actual registration of 1871.

I will next give you the statement of the second registration March 31st, 1872, 20 months after the first registration:

Whites,	552
Colored,	151
Total,	703

First registry of prostitutes in July 1870,	2,052
Second registry of prostitutes, 20 months after,	703

The report also notices a remarked diminution in the number of women registered in "single rooms," the decrease being ninety-seven per cent. in one year.

The reduction is in great measure owing to the fact that a large number of names of prostitutes have been stricken from the register, at the request of the prostitute, on the promise of reform, and with the consent of the board of health, who, on the advice of the medical examiner, have that power, but only in cases in which an unmistakable desire to reform is manifested, and to the removals. In this bill the power is also delegated to the board of police commissioners, as they are the better judges of intended reform.

I will now quote further from the report, and recapitulate a few of the moral effects of the law, which, in my opinion, far outweigh any moral objections which can be urged against it.

1st. By this report it is shown conclusively that the number of public women have uniformly decreased each year.

2d. That they are more decorous in their manner in puplic.

3d. That the plying of their wicked trade upon the public streets has been almost discontinued.

4th. That a considerable number of abandoned women have been reclaimed and restored to respectable life, and in several cases married.

5th. That private prostitution, which often develops into open vice, has been materially checked through fear of the legal consequences, when brought home to the offender.

6th. That juvenile prostitution has been almost wholly removed.

7th. Disease and death, from syphilitic diseases, diminished two thirds.

I now ask, Mr. Speaker, what of such results? Are they not encouraging beyond measure?

The report further says: "The most enthusiastic friends of the measure could not have hoped for a larger or more beneficent success than has attended its workings during the two years in which it has been in force. The young and the heedless have been warmed by the police of the consequences of entering a life of shame. The number of prostitutes has largely decreased, and the deaths, formerly so numerous in consequence of a disease concomitant on a life of shame, have, in a great measure, been prevented.

"We also see a marked decrease in crime, which' is another vital consideration.

"Under this law the evil has been removed, as it were, from the exclusive domain of the moralist, and entrusted to practical heads and practical hands, in order to give it shape and form, that, if possible, some good might be brought out of a vice so stupendous and so mischievous, and one which has existed and flourished among all nations and in all countries for centuries past."

St. Louis alone, on this continent, was the first to grapple with the monster, and that, too, with success.

And I now hope that this common-wealth may be the next to enter the field of reform by establishing the law, and although we do not claim that the evil will be suppressed or exterminated, we do claim that by the intervention of the strong arm of the law, and the strict surveillance of the police, we may be able to strip it of some of its worst features, and reduce in a great degree the ranks of its votaries.

The bold fact stands forth before the world, attested by abundant and conclusive evidence, that the supervision of this evil by the police, under protection of law, does not tend to strengthen or confirm it, but on the other hand deprives it of its worst features, and by wise and judicious management leads its victims into the path of rectitude, and finally to their ultimate restoration in society.

There is another fact to which I wish to call your attention, and it is this, that in the city of St. Louis, in two years, several hundred permits of removal were issued, showing conclusively that they were dissatisfied with the operations of the law, and how they were obliged to go to other cities for more freedom.

If other cities had a like law, can any man fail to see the result.

The chief of police closes his report as follows:

"The social evil law which established for us an industrial hospital, is a complete success. The hospital is now in process of erection, and will soon be completed, and will comfortably accommodate one hundred and fifty patients.

"Suffice to say that so much good has resulted from our present system that since the founding of a permanent home every success is provided for in the future, and this contrary to the assertion that the social evil law belongs to the effects and vicious code of the old world."

To protect the innocent from disease is a sacred duty; to put the vicious under restraint is the province of the law. Whether that unhappy being—whose very name it is a shame to utter—who counterfeits, with a cold heart, the transports of affection; who fills her maw with vice; who lives by the evil she causes to be done—who is the symbol of degradation—should be permitted to ply her vocation unmolested, or should be controlled, and how, is the question now agitating the community. Certain it is she remains while creeds and civilization rise and fall.

If the philanthropist would learn by experience, would redeem the fallen one, would wish moral and spiritual agencies to operate with success, it would become evident that the prostitute should be placed under power which has the means of controlling her.

It is undoubtedly the duty of a good and wise government to provide for the health and morals of the community, especially when the consequence of unrestrained action are serious and visible.

The "liberty of the subject," is a precarious trust, but the absence of law to meet the case of the "infected prostitute" is in reality "license for evil," because no precaution is taken to prevent most grievous infringements of the rights of others.

It is certainly an overstrained delicacy on the part of legislation to shrink from interference with a class which causes so much private misery, open violence and public expenditure, as the records of our prisons, lunatic asylums, poor houses and hospitals so amply attest.

For the maiden who, in a moment of passionate love, renders up the jewel of her chastity, there may be some pity, but what excuse or palliation can be offered for the woman who abandons her body to every comer for gold?

Should not the board of health, aided by the police, be

charged with the security of the citizens against the propagation of contagious maladies? Should they not suppress prostitution as much as possible and confine it within limits compatable with public morals, security and health?

The control and restriction of prostitution is a law of self-defence.

Why allow it to raise its head in the sunshine of the "let alone policy," and pursue unmolested, its fearful ravages?

Such conduct is incompatible with the welfare of the community. There is no such thing as absolute liberty.

The social compact demands that each citizen give up a part of his individual freedom, when its exercise interferes with the rights of others. Shall a fearful malady that is stalking madly over the land be ignored, houses of prostitution given full swing, young girls be delivered over to dens of vice without one effort to save them?

Will the laborers in social science—will the thousands of good men and women, who have the welfare of their fallen fellow-beings at heart, learn from experience?

Why this storm of indignation? Why such a painful amount of sentimental morality and wholesale denunciation of the so-called "compact with iniquity," in view of the fact that the "social evil" exists, and has existed, through all time?

As soon might we hope to bail the ocean dry, or touch the stars with our fingers, as to inhibit prostitution.

1st. The vice is as ancient as history, a universal and incurable evil, that must be tolerated, and therefore should be, as far as possible, palliated.

2d. We learn from Tacitus, book II, that from time immemorial prostitutes had been required to register themselves in the office of the ædile. The ceremony was similar to that now imposed by the law of France—giving her age, place of birth, real and assumed name. If young, the officer did his best to combat her resolution—failing in this, he issued the lincense (the *licentia stupri*) and entered her name on his roll.

3d. Do we not quarantine to prevent the spread of volatile, contagious diseases, and is it not productive of much good?

Is it not then logical to conclude that the ravages of syphilis—the most fearful and disastrous in its conse-

quences of all diseases, and a disease communicative by immediate contact—may be mitigated by surveillance.

All liberty begins and ends in a quiet conscience, and it is in the correlation of duty and law that we look for the sublime grandeur of the human soul. None need whisper to the poor unfortunate that she is degraded and diseased. Too well she knows the consequences of the disease her accursed trade engenders; and the tyranny of which they are made the victims is to them a kind and charitable act, and they generally so construe it.

Prostitutes, American citizens and human beings, though sinners and offenders against the law, should be under the control of the law.

They deserve to lose a part of their liberty. They who violate the fundamental laws of society cannot reasonably invoke the liberty that society guarantees to all its members.

Prostitution is at war with good government; is an enemy to honest toil; compromises public health; charges society with paupers and criminals; engenders idleness, crime and horrible disease.

The frightful maladies of prostitution, propagated for centuries, and the fear of an inevitable contagion, have not reduced the number of prostitutes.

Man's brutal passion has not been assuaged by the fear of frightful disease. Therefore, those who hope to decrease immorality by the fear of disease, and those who fear that immunity from disease will increase licentiousness, are equally doomed to disappointment.

I now refer to the sixth annual report of the board of health of St. Louis, which says:

"In London and other towns in England where prostitution is uncontrolled, the consequences are frightful to contemplate. During a period of seven years and three months the English army, numbering forty-four thousand six hundred and eleven men, gave, each year, eight thousand and ninety-two cases of venereal."

M. Lecour shows that from 1845 to 1854, a period of nine years, eighteen hundred and thirty girls, picked up at the villages of St. Cloud, Boulonge and Severns, furnished four hundred venereals in one thousand; and from 1857 to 1866, the same period, under the new system, were found only two hundred and twenty-four to each one thousand clandestines arrested.

At Strasburg the police were re-organized in 1853, and new regulations made. In 1853 the proportion of venereals was eight hundred and thirty to one thousand. In 1854 five hundred per one thousand. In 1855 three hundred and twenty to one thousand.

In Bordeaux, France, according to Jeannel, the registered or regular prostitutes have never exceeded twenty-two venereals to the one thousand, while the unregistered, in 1858, the year preceding the re-organization of the service, the infected were four hundred and ninety-two venereals per one thousand.

The moral degradation and tyranny with which the St. Louis law is said to visit the frail ones, perhaps only a few months removed from the kindly influences of respectable homes, may after all not be the worst form of the dilemma. Is the personal dignity even of the young prostitute so sacred that she is to have a permissive pass? Should we be so jealous of the rights of the citizens on her account, and so unnecessarily jealous, too, as would appear from the statement of Jeannel, who says "that at Bordeaux, during a period of seven years, the total number of registrations were 1,216, and of these 1,005 were voluntary," showing that even under the severe laws of France they seek the protection of examination.

M. Lecour reports that, in 1867, in Paris, he found twenty cases of syphilis for every one thousand in the regulated houses, and ten cases for every thousand in single room girls, and in Bordeaux, in 1864, they numbered only two cases in one thousand.

At Bordeaux, Jeannel found in a house containing eight girls only one diseased in four years. We now come to the plain question. Is the regulation system, established in St. Louis, calculated to lessen prostitution and diminish disease?

In our effort to solve the problem, we shall compare the prevalence of disease during the past two years, in which prostitution was regulated, with the prevalence of disease during the two preceding years, in which it was not regulated.

The report of 1871 distinctly stated the exhibit made did not include all the women in the city engaged in prostitution, but only that portion of them which a defective registration was able to reach. It also stated that the very large decrease in the total number of pros-

titutes was mainly due to the tremendous exodus from the city. No one regarded that enormous reduction as permanent—as normal—or so proclaimed it. The committee who signed the report did assert from what they saw, and they are not now ready to retract the assertion, that a law properly meeting all the exigencies of the great question would result in bringing about the greatest possible good to the prostitute, and give to mankind at least a greatly increased immunity from disease.

Supplementing these remarks with the statement that the law is now more perfect, the bawds better reconciled to it, and instead of exerting, as they did, all their energies to evade it, they now endeavor to prevent its evasion; and the chief of police, who is the best authority, says, in his opinion, there are now no greater number of clandestine prostitutes than before the enforcement of the law, and that few who make a living by prostitution evade the eye of the police, we proceed to examine the results of the regulation law in St. Louis.

REPORT OF BOARD OF HEALTH, 1873.

Population of city when law went into effect, 312,963.

Number of prostitutes, 718.

Proportion of prostitutes to the population, 1 in 425.

Population of city in 1873, 428,126.

Number of prostitutes reported March, 1873, 653.

Proportion of prostitutes to the population, 1 in 655.

Total number cases treated at hospitals in 1869 and 1870 was 9,330.

Total number venereal cases treated, 1,124.

Proportion of venereal cases treated to population 1 in 276.

Proportion of venereal cases treated to the whole number of diseases treated was 1 in 8 3-10.

Total number cases treated at hospitals in 1871 and 1872 was 10,076.

Total number venereal cases treated was 925.

Proportion of venereal cases treated to the population was 1 in 462.

Proportion of venereal cases treated to the whole number of diseases treated was 1 in 10 8-10.

The proportion of prostitutes found diseased when law went into effect in 1870 was 1 in 12 37-100.

The proportion of prostitutes found diseased during the past six months at Social Evil Hospital 1 in 19.06.

Number of deaths from venereal cases in 1869 and 1870, 36.

Number of deaths from venereal cases in 1871 and 1872, 18.

Total number of bawdy houses when the law went into effect in 1870, 119.

Total number of bawdy houses in March, 1873, 133.

The population had increased 115,163 in this time, but bawdy houses had increased only fourteen in number.

Total number of bawds in private apartments when the law went into effect in 1870, was 205.

Total number of bawds in private apartments in March, 1873, 7.

A decrease in three years of 198 prostitutes.

Average number of bawds in each house when law went into effect, 6 3-10.

Average number of bawds, March 1873, in each house 4 98-100.

Total number registered from July 12, 1870, to March 31, 1873, 2,685.

The following table shows the reason for becoming prostitutes:

Choice	2,288
Seduced	56
Necessity	254
For support	26
Poverty	23
Deserted by husband	9
Ill-treatment of parents	11
Drunkenness	9
Husband's desire	1
Led to it by a sister	1
To support children	7
Total	2,685

The single room women are the street walkers, and they, like the wild dogs of the east, infest all unregulated cities, and they are the worst and most harmful and dangerous class of courtezans.

They indeed of all others are most liable to lead the young of both sexes into temptation—who may be so unfortunate as to encounter them on the streets. To give you some idea of this class, and to show you to what extent that class of prostitution is carried on in cities,

when it is unmolested, I refer you to a report of the chief of police in Boston.

This report says of one hundred and seventy-five persons arrested in one night, one hundred and twenty-five were female night walkers, of which number seven-eighths were under the age of twenty-one. That practice has undergone a marked decrease in the city of St. Louis.

The homes of these street walkers are mostly in densely populated districts, where associations with the innocent are intimate, and where, by precept and example, they are demoralizing in the highest degree.

Their habitations are obscure and unsuspicious, not easily found by those disposed voluntarily to seek their society.

They are therefore obliged, by necessity, to advertise their profession by street walking, by their general demeanor, and by their apparel, and in this way many were allured to sin and disease by the fascination of a moment, who did not and would not have designedly placed themselves in the way of temptation.

The concentration of prostitutes is required for another reason. By the judicious selection of suitable situations for houses of ill fame, the value of surrounding property is depreciated in the least possible degree, thereby benefiting private interests and the public revenue.

It has been argued that to force prostitutes into a prison hospital is illegal and unjust, and that it is immoral, because its tendency is to diminish self-respect; and to separate them from other patients is improper. This argument is not correct.

Isolation does not demoralize and diminish the self-respect of prostitutes half so much as their intimate association with the patients of a general hospital tends to demoralize and diminish the self-respect of better people.

An innocent girl is admitted to a general hospital, poor, homeless, and friendless. After recovery she is again thrown on the cold charity of the world, with no money, no employment, no prospect but want, and often without even temporary refuge.

Her discharge is rendered necessary to make room for some other sufferers. In this dependent condition she has formed an acquaintance in the hospital with some frail one who exhibits her jewels, her dress, her trinkets,

she describes in glowing terms the attractions of her idle, careless life, a life of pleasure and plenty, and poisons her mind with the most seductive allurements and persuasions. Tempted thus powerfully under the most favorable circumstances, she takes the fatal step, and there is another recruit in the ranks of shame.

It was the placing of this matter in the hands of practical men that gave it the hope of success.

Philanthropists and enthusiasts stood by and wished it good.

Moralists would have prayed, if possible, to have dodged the question.

Impractical workers would have hoped the cause success, and suggested to others how to act, but it was practical men who faced the evil, and demonstrated the feasibility of managing what they could not suppress, and mitigating the evil they could not avert.

We believe that those who oppose the regulation system undoubtedly mean well, and we feel no disposition to find fault, except that they deal with a practical subject in an unpractical manner, and we counsel greater deliberation, deeper consideration, more extended inquiry and patient observation, until "the alphabet is learned."

Let us hope for the success of this measure, for it is a noble work, a righteous cause, and merits the success it should meet, and deserves, as has been justly said by Professor Gross, of Philadelphia, the attention of philanthropist and legislator. When properly presented to the people, who do not now understand its merits, and who have been misled by false and improper statements, it will assume a different character.

And when once these statements and arguments and objections have passed away, a new law will disclose itself in the dim future, converting a heretofore baneful class of society into a real blessing.

Legislators of the state are asked to withhold their favor and influence from the support of this system now in existence in a few States of this Union, and in France, Belgium, and many other foreign countries, a system which promises so much good in the future, and they are called upon to sacrifice lives, health, morals and money on the altar of prejudice.

Have the opponents of the system any substitute to propose in lieu of registration?

Would compliance with their request be consonant with the mighty interests legislators are chosen to protect?

Would it be a fulfillment of the sacred obligation under which they rest? I am fearful it would not.

It is within our power to choose between good and evil—to act with wisdom and prudence, or be guided by illiberal bias not tempered with discretion.

Let us hope the choice may be for good.

Mr. DeWitt. I move that the bill be recommitted to the Committee on Vice and Immorality, and in this connection I desire to have read an extract from a letter written by Professor Gross.

The extract was read, as follows:

"I am strongly in favor of licensing prostitution, believing, with many men much wiser than myself, that it is, if not a necessary evil, one that will and must always exist.

"To prevent the spread of syphilitic diseases is a subject which should engage the earnest attention alike of the physician, philanthropist, and the legislator. I believe it would be well to withhold the present bill from the present Legislature, and to refer the whole subject to the consideration of the College of Physicians of Philadelphia, to report next winter through a committee of their body to the committee of the Legislature, who have got charge of it.

"It strikes me that hasty legislation on so important a matter might be attended with bad results, and thus do the cause infinite harm by exciting against it an undue prejudice and ill-feeling on the part of the public.

"Very respectfully, S. D. Gross."

Chemical Examination of Urine.

By James R. Nichols, M. D.

The service which chemistry is capable of rendering to medicine is fully recognized by physicians, and, to a considerable extent, its aid is summoned in determining the nature of disease. It must be confessed, however, that there are far too few who invoke assistance from this quarter, and that the healing art suffers some opprobrium

in consequence. The probable reason why so few physicians employ chemical testings as an aid in diagnosis is, that they regard such labor difficult, and that only professional chemists are able to obtain reliable results. Such impressions are certainly in part erroneous. Nothing, for instance, is more simple or easily understood than the work of testing urine, and this constitutes one of the most important auxiliaries in diagnosis which the physician can call to his aid. During the past twenty-five years, the writer's services have been constantly solicited in the examination of urine, blood, and other of the more important animal products, both healthy and morbid, and in a large number of these instances the work could have been easily and readily performed by those who intrusted to him the service.

With the view of offering aid to our readers in this important department of chemical investigation, we have concluded to arrange, in a brief and comprehensive way, some plain directions for analyzing or testing urine.

As regards apparatus, but very little is required. A dozen test tubes of medium size, two or three watch crystals, a spirit lamp, specific gravity apparatus,—these, with test paper, a few acids, alkalies, etc., and the outfit is sufficiently complete. The whole may be purchased for about ten dollars. It is presumed that all intelligent physicians possess a microscope adapted to medical purposes. If any, however, have not this indispensable instrument, they should, without delay, procure one. The cost may not exceed fifty dollars for one of adequate power, but if this sum seems large, they can procure for a very few dollars some one of the little devices which modern ingenuity and skill have provided, and which answer admirably many of the purposes of more costly instruments. A friend, a short time since, called my attention to a little affair not larger than a lady's thimble, and costing but one dollar, which afforded a power, if we mistake not, of forty diameters, and was so constructed as to serve an excellent purpose for medical investigation. A more particular description of this may be given at a subsequent time.

In examining the urinary secretion, there are certain physical indications which awaken suspicion, and lead to a desire to institute chemical tests. The liquid has some peculiarity of appearance or color, or seems abnormal in

the sedimentary deposit, or its specific gravity is conjectured to be too high or too low. If it is suspected to be diabetic, the first step is to ascertain its specific gravity. This may be done by the urinometer, a little instrument constructed on the principle of the hydrometer. Its cost is about three dollars, and it can be procured of apparatus dealers in all large cities. Healthy urine varies in specific gravity from 1003 to 1030, depending upon the food taken, and the time of day at which it is passed. The urine selected for examination should be that passed after a night's rest, and if found to be somewhere between 1015 and 1025, no positive morbid condition is indicated. If, however, it is found ranging between 1025 and 1045 it is probably *diabetic*. While a moderately low specific gravity is no positive proof of the absence of sugar, a high specific gravity is one of the most certain indications of its presence. If the urine under examination is of high specific gravity, and if, after standing a white scum forms resembling flour, and if about a teaspoonful mixed with half the quantity of liquor potassa and boiled in a test tube over a spirit lamp assumes a *brownish tint*, it may be pretty safely concluded that it is diabetic. To render it still more certain, fill a test tube one-third full of the urine, and then add of a solution of blue vitriol (sulphate of copper) a drop or two, just enough to give it a very pale blue tint; now add of liquor potassa enough to fill the test tube half full, and heat it over the spirit lamp until it boils. If sugar is present, a *reddish* or *yellowish brown* precipitate will be found; if no sugar is present, the precipitate will be *black*. If the physician entertains strong suspicions that he has a diabetic patient, he should, before deciding, institute the chemical tests, even when the density of the urine is not found abnormal. If the urine is suspected to contain *albumen* (Bright's disease), fill a test tube one-third full, and gently boil it over the lamp. If albumen is present it will coagulate and form a more or less dense white precipitate. If the albumen is present only in a minute quantity, it may cause merely a delicate opalescence, or when in larger quantity it may separate in curdy flakes, and if very abundant may cause the liquid to gelatinize and become nearly solid.

The physician, however, must not conclude that his patient has Bright's disease because of the formation of

a white precipitate upon boiling the urine, as an excess of earthy phosphates will produce this appearance when no albumen is present. To prevent the possibility of error, he should test another portion of the urine by dropping in a few drops or dilute nitric acid. If this affords a milkiness which remains, and if the boiling also gives like results, he may be certain of the presence of albumen.

If urine is suspected to contain too much *urea*, place a drop on a slip of glass, and add to it a drop of pure nitric acid. Rhomboidal crystals will form in a few moments if urea is present in large excess. If none form which are visible to the naked eye, use the microscope, and if, after standing in a cool place half an hour, but few are revealed by it, it may be concluded there is no excess of urea.

If urine contains *uric acid* in excess, it usually has rather a high color, either deep amber or reddish brown. It promptly reddens litmus paper. As it cools after boiling, a crystaline sediment forms of a decided red color. Place a little of this sediment on a slip of glass, and examine with a microscope; if single or groups of well-defined crystals are seen, they are those of uric acid. Warm the urine containing the sediment, and uric acid, if present, *will not* dissolve. Add a few drops of liquor potassa to the sediment; uric acid *dissolves* in contact with this. This acid is present in minute quantities in healthy urine; with a little experimenting the physician can readily judge of its presence in abnormal quantities. This point it is important to know, as in certain diseases such knowledge is a valuable assistant to the physician in diagnosis.

The quantity of *uric acid* found in the healthy secretion is seldom more than 0.3 in 1,000 parts; in morbid urine there may be scarcely a trace, or it may run up as high as 2 parts in 1,000.

It is seldom that ammonia, or ammoniacal salts, are noticed in perfectly fresh urine. Upon standing, however, by decomposition, the nitrogenous constituents assume the form of ammoniacal compounds. Sometimes urine will be found to contain an excess of *urate of ammonia*. When this is the case, it is usually high colored, dense, and turbid. To test paper, it will be found to give an acid reaction. This, however, is not always a positive result. *Urate of ammonia* is a very common deposit in

urine. It forms the sediment which quacks make so much account of in their intercourse with their duped patient. The *brick-dust* sediment, as they designate it, is the sure evidence of terrible *inward* disease; and so long as they are able to point out the least trace of the deposit, so long will their nostrums be paid for, and swallowed by the patient.

The color of the sediment varies. Sometimes it is a reddish purple, and sometimes a pink, or it may be a pale fawn color. Other alkaline basis, as potash and soda, are combined with uric acid in the sediment. To detect urate of ammonia, place a portion in a test tube, and gently warm it over a lamp. *It will readily dissolve.* Allow it to cool, and it will again precipitate. Under the microscope, it appears as an amorphous powder, and mixed with it are seen small round particles larger than the rest. To prevent mistaking the phosphate of lime for urate of ammonia, add a drop of hydrochloric acid to the deposit on a slip of glass; if it is the former, it will instantly dissolve; if the latter, decomposition will slowly result, and minute crystals of uric acid will form. It is also important to distinguish between the *earthy phosphates* and urate of ammonia, in testing urine. The latter deposits rapidly upon cooling, or soon after the urine is voided; the former require considerable time for chemical changes to occur before they fall. Healthy urine always holds in solution the phosphates, that of lime being the most prominent. Sometimes they exist in abnormal quantity. It is difficult for the physician to form an opinion as to the amount present, whether it be normal or abnormal, by examining the urine, as sometimes, in peculiar states, there will be a spontaneous and rapid precipitation when they are not in excess; and then, again, when the urine is loaded with them, they will be held in solution. If he has reason to suspect their presence, the addition of a few drops of ammonia to urine, with warming, will cause them to precipitate, and the quantity must be judged of by comparison with that from urine known to be healthy.

When urine contains *mucus* as an abnormal ingredient, it does not usually differ in color from the healthy secretion; but the *deposit* is viscid and tenacious, and of a dirty yellow color. A vessel containing mucous urine has two layers—the ropy, tenacious mass at the bottom,

and the more limpid liquid at the top. When agitated, the two do not readily mix together. This physical appearance will be sufficient, perhaps, to distinguish it from *pus*, but to give more certainty, heat a little in a test tube, with a drop or two of nitric acid; if *pus* is present, albumen is also, and it will coagulate, or form a floccy precipitate.

The absence of albumen in urine is a strong, almost positive, indication of the absence of *pus*. The urine containing this substance is sometimes neutral, sometimes acid, and also alkaline; so test paper affords no indications in regard to its presence.

Semen is occasionally found in urine, and for its detection we must rely upon the microscope of high power. When it is present, the microscope reveals plenty of minute animacules, of a more or less oval form, with long and delicate tails, resembling somewhat the tadpole. These, of course, are the *embryo* of the human being; and when seen in their native fluid, are active, moving about at will. In the urine, however, they are seldom found alive, the secretion proving fatal to them.

The ground gone over in these remarks upon qualitative analysis of urine is perhaps sufficiently extended to afford all necessary aid to the physician in the important department of diagnosis. Simple and reliable methods of testing for the important agents in morbid urine have been given in the fewest words possible, and it is quite unnecessary to confuse, by referring to more complex and difficult processes to reach the same general results, or to explain methods of quantitative analysis.

The intention is to show that by a few simple experiments it becomes easy, not only to confirm or dissipate our suspicions as regards the character of any specimen of urine, but, if morbid, to discover the nature of the difficulty. It may be well to briefly recapitulate the nature of the testings, and notice a few other reactions which are worthy of observation.

The first step in the examination is to test with blue litmus paper; if acid, the color will change to *red* or *reddish purple*. If no change is produced, test with a strip of turmeric-paper; if alkaliue, it will become *brown*. If the liquid is alkaline, the alkalinity is probably due to the conversion of urea into carbonate of ammonia.

2. Ascertain the specific gravity of the urine by means

of an urinometer; if that is not at hand, it may be ascertained by the use of a small phial.

These two steps being taken, the next may be postponed until time has elapsed sufficient for a sediment or deposit to form. If this occurs, it will most probably consist of earthy phosphates, uric acid, urate of soda, or ammonia, or oxalate of lime. These may sometimes be found alone, or sometimes two or more, mixed with the others.

3. Warm the deposit in a test tube; if it dissolves, it is probably urate of soda, or ammonia. If it does not dissolve,—

4. Add three or four drops of acetic acid to another portion; if it dissolves, it consists of earthy phosphates.

5. If it proves insoluble, try a little with hydrochloric acid; if it dissolves, it is probably exalite of lime.

6. If still insoluble, dry a little of the sediment upon a watch-glass, and add a drop or two of nitric acid; if it dissolves, dry again to a powder, and when cold add a drop or two of ammonia; if this affords a beautiful purplish-red color, it is uric acid.

These experiments show if the sediment be either of the four substances most common, earthy phosphates, urate of ammonia, oxalate of lime, or uric acid.

If it is neither of these, it may be pus, mucus, semen, blood, cystine, fatty matter, chylous matter. The methods of detection of the first three substances have been pointed out with sufficient distinctness. Blood may be known by the color; also, it is not soluble when warmed. If a portion is warmed in a test tube; and a drop or two of nitric acid added, it will coagulate.

To ascertain if it be fatty or chylous matter, agitate a portion with an equal bulk or ether, in a test tube. Allow the ether to evaporate, and the fatty matter will be left behind; mix water with it, and observe the globules of fat float on the top. If, when the ether is shaken up with the urine, it becomes opaque and almost milky, chylous matter is probably present. Place a little of the deposit in a watch-glass, and add a few drops of ammonia; if it is cystine, it will dissolve. Dry the solution over the spirit lamp, and examine the crystals with the microscope; if the form is distinctly hexagonal, the proof of the presence of cystine is conclusive. If the urine under examination affords no deposit upon standing, it may be subjected to the same class of testings, having the same objects in view, as has been described in these papers.

The use of the microscope in this class of investigations is all-important. The most extended and satisfactory results cannot well be reached without the use of an instrument of the power of two hundred diameters. Smaller instruments, however, may be of great service, where larger ones are not at hand.—*Boston Journal of Chemistry*.

Translations.

Spermatogenesis in Vertebrate Animals.

By PROF. BALBIANI.

Lecture delivered at the College of France, and translated from the "Journal de Micrographie," of June and July, 1877, by THOMAS. C. MINOR, M. D., Cincinnati.

I.—SPERMATOZOA.

Before investigating the mode of development of spermatozoa, it is proper to briefly review the information acquired up to the present day in regard to these corpuscles.

The sperm of all animals contains spermatozoa which, with very rare exceptions, are mobile. Some of the small crustacea, the *asellus*, the *gammarus*, some *ascaris*, and a few animals, furnish a sperm in which the fecundating corpuscles are immobile. Among all the vertebrates the spermatozoa are endowed with movement; they are the representative elements of the sperm; it is to them that this liquid owes its white color. In certain fish the sperm is even of a chalky shade by reason of the large quantities of spermatozoa it contains. These act, in this case, like the fine fatty globules to which milk owes its white color.

From the sponge and the infusoria up to man the sperm contains solid particles, which are the instruments of reproduction. It was in man that their existence was demonstrated for the first time, in 1677, by Louis Hamm, a student of Leyden, in the case of a patient suffering from spermatorrhœa. Soon afterwards Leeuwenhoeck examined the sperm of a great number of animals, and found them everywhere.

No biological discovery ever made more of an impression in the world of science and philosophy. Leeuwenhoeck was believed to have found the pre-formed and

pre-existent germ of animal life. In man it was thought he had found the human germ—the homunculus. Even at a period much more recent several physiologists continued to consider these animated particles as having an independent existence, parasites nourished by the liquid part of the spermatic animalcules, a kind of entozoa, living, in a normal state, in the sperm of all animals: Ehrenberg, Valentin, and Schwann thought so, and the name of *spermatozoaires* which was given by them is the translation of this idea. Duvernoy was the first, in his teachings at the College of France, to apply the better designation of *spermatozoids* (spermatozoa).

Lallemand and Kolliker were forced to rebel against this doctrine, and to demonstrate that they constituted only elementary particles of living tissue (Lallemand). But Kolliker especially, in 1847, in studying their mode of development, wished to show that they were anatomical elements, dependent on the organism which engendered them, and that they resulted from the simple transformation of a cellular nucleus.

However, Kolliker has gone too far in this idea; the spermatozoa are not simple nuclear elements, and there is certainly something just in the notion that has caused them to be considered animulcules. They owe their existence to phenomenon of conjugation; and histologists have even gone so far as to recognize in them a distorted digestive tube, with a sucker-shaped mouth (Pouchet, 1847). Evidently it is necessary to cut off much of this description. Spermatozoa are elements much more simple than those sucker-like varieties of infusoria, but nevertheless less simple than has been believed up to a recent period. Their form is, besides, nearly the same in all animals, particular among the vertebrates, where they present the appearance of a filament, more or less long, provided with an enlarged cephaloid extremity, the head and a caudated tapering portion. It is especially the form of the head which presents differences, often even in closely allied species, as, for instance, in the red frog (*Rana temporaria*), and the green frog (*Rana esculenta*). In the one, the head ot the spermatozoa does not offer, so to speak, a resemble enlargement, while in the other it is very marked, and exceedingly elongated.

Among birds, there is a considerable difference; the head is often screw shaped. The spermatozoa of reptiles

resemble in general those of birds, as well as those of cartilaginous fish, while those of bony fish resemble more those of the mammifera.

For a long period no more extended views were held regarding these corpuscles, and it is only within the last ten years that Schweigger-Seidel (1868), has shown us that they do not constitute homogeneous beings, and present in their various parts differences of chemical composition. He distinguishes three parts in them: An anterior part or head, a middle part or *median segment*, and a caudal filament or tail. One may easily bring about the separation of the head and median segment, by using compression on the slide. In the head there is an axilated filament, sometimes clear, sometimes obscure, according to the position of the objective. Treated with water, only the head swells, while the median segment is not modified. With carmine the head also only is colored. Acetic acid, to the contary, swells the middle segment, dissolves in part the tail, and causes the appearance, little by little, around the head of a kind of membrane, the common envelope to the median segment and the head.

In the triton, the head of the spermatozoa is very elongated, sharp at the anterior part, the middle segment is followed by an extremely long caudal filament, upon which is an undulating membrane that determines progression. But it is the median segment which is colored by the carmine—it corresponds perhaps to the head of the frog's spermatozoa.

Acetic acid dissolves the tail and causes the same appearance. It is the same in birds and in mammifera. We distiuguish the three same parts; the head is colored the same by carmine. The median part has most often the aspect of a refracting cylinder which we can separate from the head. In rams the median segment is itself formed by a succession of small superposed particles, which may be separated from each other. Dujardin, (1837), had already an idea of this structure. Acetic acid partly dissolves the tail, rendering the middle segment granular and not deforming the head. Potassa acts in an inverse sense, rendering the head granular, and leaving the tail intact, also the median segment. Very recently, in Switzerland, Miescher has discovered in spermatozoa a still much greater complexity, not only among fishes and the mammifera, in which the organization

is the same from this point of view. The head is not homogeneous, but formed of two parts, a thick, homogeneous, refracting envelope, and, at its anterior, a paler mass clearly bounded by a circuitous line. Analine blue colors the envelope, but with the chloride of gold, to the contrary, the central mass is colored an intense yellow. Besides, in this part a prominent cylinder appears towards the centre of the internal mass, fixed by its base upon the capsule, and opposite the insertion of the cylinder, upon the capsule, is perceived a very fine canal, which pierces the latter, and puts the cylinder in communication with the middle segment. This is the *microspore*.

Miescher has observed these details among the spermatozoa of a great number of animals (dogs, bulls, fish, etc.) Eimer has given similar details; and, besides, he holds that the spermatozoid is traversed its entire length by a central filament, which projects into the head, and connects the latter with the median segment, leaving a space, more or less large, which constitutes the neck, a space which is nowhere found as marked as in the spermatozoa of the bat. The median segment is composed of superposed particles, as has been indicated by Schweigger-Seidel and Dujardin, and each of these particles is traversed by the central filament. This external matter covering the filament, even in the tail, would be the protoplasm of the spermatozoid, which would represent a vibratile cellule with a single hair; the head would be the nucleus. And Eimer has seen in the man and in the guinea pig a kind of nucleolus, placed in the anterior portion of the head, very transparent in man (which is in accord with the description of Miescher already quoted). The median segment would be the body of the cellule. This opinion is also held by Schweigger-Seidel.

The corpuscles are animated with very lively movements, and it is often necessary, in order to study them in all their activity, to dilute the sperm with some sort of liquid, especially if it is very thick, as in the case of fish. In fact, when we examine the milt found in the body of the animal, we find no movement among the spermatozoa, but as soon as we add a drop of water, a mass of moving animalcules is observable.

The movements of the spermatozoid is varied; we notice movements of flexion, contraction, rotation, undulation, and of progression. These seem to be most often

produced by agitation of the extremity of the tail, which describes a circular conical motion around a point more or less contiguous to the medium segment, like a screw, which determines progression, with the rotation of the spermatozoid upon its axis. This is also observed in the spermatozoa of the algæ, and many of the ciliated and flagellated infusoria.

In the triton, progression is brought about by an undulating membrane inserted through the whole length of the tail, and there is not, in this case, rotation around the axis.

Lavallette Saint Georges, in a work of which we shall speak very soon, has described, among batrachia, (common frog, *Bufo cinereus*), the existence of spermatozoa with two tails. Balbiani, who had received this information with incredulity, wished to verify it, and, in fact, has recently found it to be correct. But this fact is not presented as an abnormal or accidental phenomenon; it is regular and constant. In the common frog, each spermatozoid has two tails, and presents, consequently, altogether the aspect of certain flagellated infusoria, the *Amphimonas*, for example.

Let us return to the spermatozoa formed according to the ordinary type. When the abatement of motion commences, the tail, in place of circular movements with rotation of spermatozoid around its axis, only executes lateral movements, there is still progression in direct line or in the arc of the circle, but none of rotation. This progression plays a part in fecundation; the spermatozoa move thus to the front of the egg, mounting into the fallopian tubes, often very far, and many penetrate even up to the ovary, where they have been found. In animals having external fecundation, as in fish, they pierce the thick albuminous mass of the vitellus, where they are seen to penetrate by a perforating movement.

The vitality of the spermatozoa is more or less great, according to the species, most feeble in warm blooded animals. In man they are found living from 12 to 24 hours after death, at least after long chronic diseases. Godard has found them living in the deferent canal of a criminal 54 hours after death, and 72 hours after death in the epididymis of the bull. Valentin observed them in man 24 hours after death; but among the batrachia and fishes vitality lasts much longer. Quatrefages has preserved it for 24 hours in an ice house, and Leuckhart from 4 to 6

days (perch). Balbiani has performed artificial fecundation with the milt of trout preserved for 4 days at a temperature of 50° to 59° Fah.; of 40 eggs 32 were fecundated. The fifth day, the temperature being raised to 63° Fah., the movements of the spermatozoa were abolished; the corpuscles being dead, having lost their tails.

Cold, congelation even, is not fatal to the spermatozoa of man (Godard). Those of the pike may be congealed at 50° Fah. (Quatrefages), and those of the perch at 36° Fah. (Wagner). Prevost kept the testicles of frogs several days in ice, and still found living corpuscles.

As to the degree of heat that the spermatozoa can support, without losing their vitality, much less is known. A temperature of 111° Fah. does not kill them, according to Leuckhart, but at 133° Fah. movements cease—the corpuscle is dead. It is well to remark that the vibratile cellules of the frog only cease their movements at 176° Fah. (Claude Bernard).

We will only say a few things regarding the reagents, of which the study would lead us too far from our subject. We will recall only the following facts:

Animal liquids exercise no injurious action upon spermatozoa, at least when they are not acid, or too strongly alkaline (Kolliker). Their normal mean is the vaginal or uterine mucus of the female, which is always alkaline—nevertheless if the alkalinity is too great, the spermatic corpuscles perish rapidly. Women in whom the vaginal mucus is strongly alkaline, are not fertile. Neutral watery solutions, tolerably concentrated, as those of sugar, gum, starch, do not attack them. Pure water and acidulated water are, to the contrary, most poisonous: the spermatozoa very soon cease all movement, and present this characteristic, a tail bent on itself in loop shape. Distilled water especially kills them rapidly, but the most violent poisons are the acids—a mineral acid in the quantity of 1 part to 7500 parts of water kills them instantly. The weak alkalies, potassa 1 part to 500 or 1000, momentarily excites, but soon destroys them.

Narcotics, sufficiently diluted, have no action; certain metallic salts kill spermatozoa more rapidly than others; and the most violent poison of all appears to be, according to Quatrefages, the bichloride of mercury, which, in the dose of 1 part to 2,000,000, immediately kills the spermatozoa of all the mollusks.

Kolliker has experimented with ether, chloroform, alcohol, and says that these liquids act like poison. Balbiani hâs repeated these experiments with water containing from 5 to 10 to the 100 of absolute alcohol, in which he has performed artificial fecundations, succeeding in the ordinary proportion. Actually the small fish (trout) undergoing these experiments did well. It was the same with ether and chloroform, in the same proportions. Meantime the movements of the spermatozoa of fish are very rapid, but of short duration, lasting no more than 30 seconds; so alcohol, ether and chloroform did not abolish their movements in the time necessary for fecundation.

II.—Historical.

Iu 1836, Rud. Wagner first annonnced, in a very short memoir, inserted in "Muller's Archives," that the spermatozoa were formed in the interior of particular vesicles. He observed, among swallows, granular globules, and more or less voluminous vesicles. According to him, the spermatozoa were developed in the vesicles at the expense of the globules, which he also found in great quantities isolated in his preparations; and he believed, in particular, that these granular globules were transformed into spermatozoa, for he found vesicles containing globules, and others containing perfectly formed spermatozoa.

In 1846, Kolliker proposed a theory, as applying to the formation of spermatozoa in all vertebrate and invertebrate animals. These corpuscles arise, according to his idea, in the vesicles at the expense of the globules, as Wagner has indicated, but these globules are only cellular nuclei. The vesicles themselves are cellules, which contain one, two, three, four nuclei; and it is by endogenous generation *in* each nuclei, which is vesicular, that the spermatozoa are formed, the which are thus enveloped by the nuclear membrane that is ruptured later.

But soon after, in 1847, Reichert, in "Muller's Archives," and Funk, in 1852, in "Gunther's Physiology," claimed that the spermatic corpuscles are not nuclei but cellules; their formation not being intra-nuclear but intracellular.

Kolliker resumed the question in 1856, and this time stated that ths spermatozoa resulted from the *transformation* of the entire nuclei. They were no more formed

within, no more enclosed in the nuclear membrane, and had no other envelope than that of the cellule. This eminent histologist maintains, even to-day, this doctrine, which has become classical, but which, for some years past, has been reduced to naught.

Thus, according to Kolliker, the semeniferous canals are primitively composed in embryos of cellules forming cords, without membrane or envelope. In reality, they are not canals, but strings of cellules of the same size. Up to the time of puberty they multiply actively by division, and, when sexual maturity arrives, they form a new work; the cellules of the centre proliferate by endogenous generation, in the same way as those of the periphery, in such a manner, that at the moment the animal becomes in heat, we find in the canals large cells which are the cellules of development of the spermatozoa. They are formed by the elements we have described, and contain one or several nuclei. These are the mother cells containing the daughter cells, or, in other words, large vesicles containing nuclei. Kolliker calls them *spermatic cysts*.

Primitively, the nuclei are all round, but very soon they elongate, and show themselves to be composed of two parts—an anterior portion more dense and dark, a posterior portion smaller and paler. It is this last that produces the tail of the spermatozoid, and the other the head. In fact, at the clear pole appears a filament which increases in proportion as the clear part diminishes, for it is at the expense of the latter that the filament is formed. This change is produced in the interior of the *spermatic cyst*. At the commencement, the spermatozoid is rolled up in the cell, but it trys to unroll itself, and, by a forcible effort produced with its filament, the cell is very soon destroyed, the spermatozoid freed, often remaining covered for a certain time by the debris of the cellular membrane. Often also the particles of protoplasm in which it is bathed remain adherent to the caudal filament, but these details are accidental and disappear shortly. The same phenomena is produced in all cysts.

In the last edition of his "Histological Lectures," Kolliker reproduces this explanation almost word for word. But, like other defenders of this doctrine, he has been led into error by accidents to preparations, and, for example, by the process of dissociation in a liquid. In order to

obtain properly arranged preparations, and to observe the connection of parts, it is necessary to examine sections of hardened testicles, prepared either with chromic or bichromic acid, or with absolute alcohol.

But in order to have a complete and general idea of the phenomena of the formation of spermatozoa, it is necessary to study successively among the different groups of vertebrates, commencing with those in which the organization is shown to be least complicated.

(To be continued).

Microscopy.

The New Method of Polarizing, etc.

Dr. J. A. Thacker;

Dear Sir—Permit me to rise and explain, in the shape of this somewhat miscellaneous, though reasonably brief, addendum:

In the first place, I cheerfully confess that Dr. J. G. Hunt's strictures and suggestions are perfectly sound, and show him to be, what we all know him to be, completely up with the times. I wish our art kept as fully up. But it does not; and we must make the best of what we have. It is possible, that in putting his case clearly and strongly, he, as is humanly natural, to some extent underrates what has been done, momentarily, for one thing, seeming to forget, that by the so-called acid process, much of that, of which he mourns the absence, may be preserved. As, however, the unbiased reader is quite likely to hit the *mittel strass*, on perusing what has been written on both sides, I drop the subject.

My method of polarizing light needs a few additional words. A plausible explanation being better than none at all, I offer one, having, in due form, filed a mental *caveat*, directed to myself.

According to Fresnel, light falling at the angle of 57° (nearly) on a plain glass surface, is polarized. If completely polarized on passing by reflection from the plate, it may be supposed to be in the middle or circular stage when it reaches the opposite side from the point of impinging. Of course, the light is now so refracted, that so

far as the object glass is concerned, it is null; hence the perfectly black ground shown wherever the glass is under the eye. Such of the polarized light as passes through strikes the crystal, or any polarizing and analyzing object, and by the surfaces or the inner structure of that object the polarization is carried to the second elliptical stage, showing, by interference, the colors which the polariscope presents. Besides, there may be a *re*-polarization and analysis—a further refinement of the light—by the object itself. This would help to account for the wonderfully delicate distribution of shades of color. It has occurred to me that in this crude appliance may rest the germ of what is to help us out of the dilemma of having machinery too potent for the light itself in its normal, or even in the ordinary polarized, state.

I have recently discovered that when the effect is at its best, great *richness* of color can be developed in parts previously one-hued, by very carefully turning the mirror towards me, with exceedingly minute adjustments to the right or left. The light is a good deal diminished, but the colors are very pronounced.

Butterfly's dust, mounted dry, is highly interesting by this light. By so placing the mirror as to make green the strongest color, the structure can be quite satisfactorily studied under so low a power as 275 diameters. If, however, you wish to *enjoy*, let the orange predominate over the green and gold. Often a single grain seems to radiate the light for the entire field.

The legs of insects, together with wings, probosces, hairs, and antennæ, are excellent objects for this kind of light. The insect is prepared in the usual way, except that only a moderate degree of clearing is better than complete clearing. Very thin sections of flesh-tissue may be best studied, so far as studying is done, by medium or low powers, by this illumination. The mounting is done in balsam or in glycerine jelly.

I have found that crystals made during electrical disturbances, as during a thunder-shower, have much greater diversity of shape. Salicine, crystalized under that condition of things, almost loses its characteristic form, presenting field after field of single or crossed bars, with radiations strikingly similar to those shown in photographs of magnetic currents.

To save the beginner much time and many disappoint-

ments of the wet-blanket sort, I append this list of objects in which the things denoted by the heading are always best found.

CRYSTALS.

Althæa rosea, in September, (quadrade and rhombic); fuchsia (raphides); hibiscus rubra pleno; mallow sylvestris, in Sept. (quad.); dianthus, Aug. (large quad.); solanum mammosum (granular brown); acosicum asperum (fern); syxifraga sarmentosa (stellate); rhubarb; senna; squills (raph.); ricinus communis; lemon leaf; most of the cactus family; mamellaria stellaria. This last has the largest crystal I have ever seen in a plant.

GLANDS.

Paulownia Imperialis; all the insectivorous plants, except utricularia; momordica balsamia; lilac; Eng. jasmin; laurus sassafras; all aromatic or medicinal plants.

HAIRS.

All the dentzias (stellate); vitis cordifolia (tendril-shaped); solanum mammosum (very large stellate); helianthus hirsutus (jointed); carpel of beech-nut; mullein (branched); very young hickory (juglans tomentosa) leaf, from bud in April.

SPIRALS.

Pinguicula; the dentzias; passiflora, leaf and stem; small leaf of briar-rose; blackberry stem; longitudinal sections of midrib of althæa, hickory, magnolia grandiflora, in fact, of almost any plant that has a well defined midrib; ricinus (axil—very striking); petiole of stramonium, or of the ailanthus; stem, or stipe of all ferns; membrane about the meat of black-walnut.

THICKENED CELLS.

The finest of these I have found in the carpel of the half developed hickory nut, the magnolia stem, the oleander, begonia ricinifolia, the nympha alba. The most picturesque fibro-vascular bundles in tr. sect. are found in the dracorna, the South Carolina papyrus, or in rushes generally. The bamboo, cut very thin, is good. Corn leaves, and most thick grasses, in tr. sect. of midrib, richly reward the trouble of preparing them.

Having now told all that I know which anybody else would care to know about this thing, which has filled my leisure hours for so long a time, and often so filled them with pleasure, that the recollection is precious to me, I, with due obeisance, yield the floor.

Very truly yours, L. R. Peet.

Nature and Signification of the Small Red Blood-Globules.

M. Hayem, in a note addressed to the *Academie des Sciences*, states that his physiological and clinical investigations have convinced him that the so-called microcytes, which are described by some observers as specific elements, are simply small red globules modified by external agencies. They do not pre-exist in the blood, and their number varies according to the way in which the preparation has been made. The smallest elements that can be recognized as possessing the character of the red globules measure only two-thousandths of a millimetre. Despite their exiguity they are perfectly disk-shaped and biconcave, but they are sometimes lighter in color than the larger globules. In pathological conditions these globules may lose their disk-shape, but the biconcave form is always retained. The so-called microcytes are spherical in form, some being strongly refractive and dark, and others pale in color; the former appear to be red globules in a sort of tetanic condition, for certain reagents, in destroying them, restore their normal biconcave form. The latter are the more tender elements, which offer less resistance than the others to the effects of endosmosis. The small globules are liable to undergo these changes of form in the normal as well as the pathological state, but certain morbid conditions render the transformation more easy. When blood containing a certain proportion of these globules is examined in the moist chamber, many of them may in fact be seen to assume a spherical, vesicular, and sometimes even a mulberry form.

The blood of the healthy adult very rarely contains small and dwarf globules, but the blood of the new-born child and of the menstruating woman always contains them. In pathological conditions they are often met with, as after hemorrhages, at the commencement of convalescence after acute diseases, and in chronic anæmia of moderate intensity.

The small red globules are found both in the normal and the pathological state, whenever an active production of new elements is taking place; they characterize blood in process of evolution or reparation. From this M. Hayem concludes that they are young, incompletely developed globules, differing from the adult globules

only in their exiguity and the facility with which some of them become spherical when removed from the vessels. In organisms which present the conditions necessary for their normal evolution, they are only found in the blood at times when they are formed in large numbers (first weeks of life, menstrual period), and are then never very abundant. In pathological states, on the other hand, when they do not meet with the conditions necessary for their normal evolution, they remain small and accumulate in the blood, so that they sometimes become exceedingly abundant. This is doubtless the reason why the small globules are met with in such abundance in the blood of some anæmic persons; many young globules are formed, but they do not attain their normal development.—*Gazette Medicale de Paris, June 16th.*

Discovery of the Adult Representative of Microscopic Filariæ.

To the Editor of the Lancet.

SIR,—Permit me to announce an interesting addition to our knowledge of parasites, seeing that it is calculated to throw light upon the question of the origin of one or more obscure diseases.

The brilliant discoveries of Lewis, followed up as they were by Sonsino, in Egypt, and by Welch and others in this country, have at length been verified and extended by the observations of Dr. Bancroft, in Australia, who has become acquainted with the sexually mature form of at least one of the various kinds of minute nematoid hæmatozoa.

As has already been stated in the pages of one of your contemporaries, I received, in the spring of 1876, some capillary tubes from Australia, charged with blood taken from a chylurous patient. The donation came through Dr. Roberts, of Manchester, who, prior to my investigation, had himself examined the contents of similar tubes, and had personally verified Dr. Bancroft's discovery of the microscopic hæmatozoa in question. In the notice which I published at the time, and which was reprinted in the *Veterinarian* (July, 1876), I mentioned that I had detected a nematoid ovum in the Australian blood—a fact which rendered it almost certain that the adult worm

must be sought for in the human bearer. I sent Dr. Bancroft a copy of this article, and what was therein stated induced him to continue his investigations. These further researches have resulted in the record of novel facts which, in response to his courtesy, I now make public.

In a communication dated from Brisbane, Queensland, April 20th, 1877, Dr. Bancroft writes as follows:

"I have labored very hard to find the parental form of the parasite, and am glad to tell you that I have now obtained five specimens of the worm, which are waiting to be forwarded by a trust-worthy messenger.

"I have on record about twenty cases of this parasitic disease, and believe it to be the solution of chyluria, some form of hæmaturia, one form of spontaneous lympathic abscess, a peculiar soft varix of the groin, a hydrocele containing fibrinous fluid, another containing chylous fluid, together with some forms of varicocele and orchitis. These I have verified.

"In the colony there are no cases that I can find of elephantine leg, scrotal elephantiasis, or lymph scrotum; but, from the description of these diseases in the volume on skin and other diseases of India by Fox, Farquhar, and Carter, and from Dr. Roberts' article on the latter in his volume on 'Urinary Diseases,' I am of opinion that the parasitic nature of the same will be established.

"The worm is about the thickness of a human hair, and is from three to four inches long. By two loops from the centre of its body it emits the filariæ described by Carter in immense numbers.

"My first specimen I got December 21, 1876, in a lymphatic abscess of the arm. This was dead. Four others I obtained alive from a hydrocele of the spermatic cord, having caught them in the eye of a peculiar trocar I use for tapping. These I kept alive for a day, and separated them from each other with much difficulty. The worm, when immersed in pure water, stretches itself out and lies quite passive. In this condition it could be easily washed out of hydroceles through a large sized trocar from patients known to suffer from filariæ.

"I will forward you full particulars of my cases (and the worms) at an early date."

Such, Sir, is Dr. Bancroft's account of his "finds," and from the brief description furnished I propose to call the adult nematode *Filaria Bancrofti*.

If I refrain from lengthened comment on the significance of the facts it is because I know how ill you can afford the space necessary to do full justice to the subject. The literature of the hœmatozoa has already become intricate and of great extent.

I will only add that I share with Drs. Bancroft, Lewis, Sonsino, Fayrer and others, the opinion that a considerable group of morbid conditions, hitherto obscure as to their mode of origination, arise from the injurious action of microscopic filariæ. T. SPENCER COBBOLD, M. D.

San Francisco Microscopical Society.

The regular semi-monthy meeting of the San Francisco Microscopical Society was held in their rooms on Thursday evening, August 2d, with a large attendance of members. President Ashburner was in the chair, and Prof. Eisen, corresponding member, was present, as well as Dr. Behr, as a visitor.

Under the head of acquisitions, the Secretary announced the receipt of the *Monthly Microscopical Journal*, *Quarterly Journal of Microscopical Science*, CINCINNATI MEDICAL NEWS, *American Journal of Microscopy*, *Popular Science Monthly*, *and Nature.*

Mr. Kinne stated regarding the acarus found in the decomposing kernel of the coffee-berry, presented by Mr. Wickson at the last meeting, that a somewhat critical examination of its minute parts had confirmed his opinion of its alliance to the sugar insect. The terminal and other joints of the legs, the mouth parts, and disposition of hairy bristles, being almost if not quite identical with the true *acarus sacchari.* He alluded to the fact that about fifteen per cent. of the coffee bean is sugar, dextrine, etc., and was led to say in this connection that the opportunity which fortunately had been given him to examine, many specimens, has caused him to believe that most of its kind depended on saccharine matter for food, and should be classed as varieties and not species. The lemon tree acarus, described by him recently, the colony found in the centre of a sugar-cured ham, the barley-acarus found in the debris of a mass of that grain, which had been slightly moistened and fermenting, and others met

with at various times with varying habitats, only were possessed of such slight variations from that of the true sugar-insect, that the evidence was of a convincing character enough to warrant the assumption that they were varieties of that acarus, modified by their environment, and should not be relegated to species.

Mr. X. Y. Clark favored the members with some remarks on the crustacea, in the way of explaining and exhibiting the organ of hearing in our local lobster, or crawfish, properly speaking, which is one of an entirely different genus (astacus) from that of the lobster (homarus). He stated generally the characteristics of the several special senses in this crustacean, in which he had been interesting himself to study recently, and alluded to the probable development in the way of organs of seeing, smelling, and especially hearing. The eyes were, no doubt, once but simple feelers, and by a process of evolution had developed into appendages. The organs of smelling were the larger of the remaining pair of feelers—antennæ—while those of hearing were located in the smaller pair, or antennules. The parts of the latter were easily dissected out with a pair of scissors, and the lobster's ear, in the shape of an auditory sac, handed about on a needle for examination. Placing a prepared fragment, immersed in glycerine, on a slide, the sensitory hairs were beautifully shown, standing out from a telephonic floor, so to speak, and the previous explanations, by means of diagrams on the blackboard, were rendered still more plain, and the method in which the little hairs would receive sensations from vibrations in the fluid in the sac made theoretically clear. Mr. Clark also exhibited several slides showing colonies of bryozoans and beautiful little calcareous helices of serpula, on some fronds of a fucus.

Fairmount (Philadelphia) Microscopical Society.

The annual meeting of the Fairmount Microscopical Society, of Philadelphia, was held June 22d, 1877. The reports of the President, Secretary and Treasurer were presented, and accepted. The following officers were elected to serve for the ensuing year:

President—S. Henderson Griffith, M. D.

Sec'y and Treas.—Wm. C. Stevenson, Jr.

Managers—John Gordon Gray, Thos. D. Ingram, M. D., Henry Winter Davis.

Nearly the entire evening was taken up by matters of a purely business character concerning the Society.

After an assignment of papers for the next meeting, and an examination of miscellaneous objects, the Society adjourned. W. C. STEVENSON, JR.

PERSONAL.—We were recently called upon by Mr. ED. BAUSCH, of the Bauch and Lomb Optical Co., of Rochester, N. Y., on his way to Nashville, to attend the meeting of scientists and naturalists there. Mr. B. had with him a large number of objectives of Gundlach ranging in power from 4 inches to a $\frac{1}{24}$th. We regretted that his visit was limited to a couple of hours and did not extend over several days. But as it was we were afforded much pleasure.

As we have before intimated, Mr. Gundlach has brought about a new era in the construction of fine lenses in this country. Through him those of the highest qualities, fully equal to, and in many instances, superior to, those of the most distinguished makers of Europe can be had at prices as low or even lower than were formerly charged for inferior ones. Certainly the day of cheap French commercial objectives, and second quality of English ones, has been brought to a close. The worker with the microscope of small means in any department of natural science can now have lenses with which it will be a pleasure to work and not an aggravation.

Among the many objectives shown us by Mr. Ed. Bausch were a $\frac{1}{4}$th of 100° angle of aperture, and a $\frac{3}{10}$th of 75°. The price of the first was only $14, and of the latter $11. Even the latter exhibited the striæ of p. angulatum very beautifully. The time was too limited, and the circumstances not sufficiently favorable for us to give anything like a critical examination to such high powers as $\frac{1}{8}$, $\frac{1}{12}$, $\frac{1}{16}$, $\frac{1}{24}$ contained in the cabinet. We saw sufficient, however, to convince us that they were of very fine quality. A number of these had an angle of nearly 180°.

We hope Mr. Ed. Bausch will at some future time favor us with another visit, when he will have more time at his disposal.—ED.

Gleanings.

Tayuya: A New Remedy in Syphilis.—M. L. Faraoni, in a pamphlet published in the course of last year, states that Ubicini found in Brazil a tribe who suffered much from lues venerea, and who employed with success a plant having the local name of "Tayuya." The plant (Dermophylla pendulina) belongs to the family of Cucurbitaceæ, and grows in the primeval forests of Brazil. The alcoholic extract of the root is the part employed, and it may be injected subcutaneously in doses of fifteen grains. It is almost always successful, relapses are rare, and mercury and iodine are practically rendered unnecessary. —*The Lancet.*

Treatment of Vaginismus.—A case of vaginismus is described in the *Canada Med. Record*, which was cured by several successful operations of the nature of excision and dilatation, involving much time and labor. A case occurred in our charge, which was promptly cured by a single operation. A young lady, two years married, had never been able to submit to the embraces of her husband, on account of the most excruciating pain which was excited by any attempt at dilation of the vaginal orifice. The slightest touch with the finger induced spasm and intolerable suffering. No other pathological condition was observable than excessive hyperesthesia and tendency to spasmodic contraction. She was placed under the influence of ether, and the forefingers of each hand introduced, and the orifice forcibly distended. The time occupied in the distension was not more than six or eight seconds, which was not enough, as the operation resulted in a slight tearing of the fourchette. This, however presented no obstacle to speedy recovery, and in two weeks from the operation the patient returned to her home in the interior of the state, entirely free from any impediment to marital intercourse. There was no return of the difficulty. The same treatment will answer for stricture of the anus or rectum, when it is not positively cancerous. —*Pa. Med. and Surg. Jour.*

Another Case of Gastrotomy.—M. Lannelongue, of Bordeaux, reports that he has practised this operation under the following conditions: A man who had been

suffering from stricture of the œsophagus for six months, found himself utterly unable to swallow any liquid food. Passage of instruments was impossible, and the patient was much enfeebled. Accordingly, gastrotomy was done in pursuance of the plan adopted by Me. Verneuil in his successful case. No difficulty was met with in the operation, and the patient was fed for twenty-six days, but pulmonary trouble led to a fatal issue. At the autopsy the disease was found to be epithelioma of the œsophagus, and perforation had taken into the bronchi. It was also seen that the stomach was perfectly adherent to the abdominal wall. M. Lannelongue therefore gives in his adherence to the view that gastrotomy is a rational operation, believing that it is indicated wherever life is threatened from aphagia. To insure success, Verneuil's method should be rigidly followed, one of the principal points he lays down being that the stomach is to be firmly fixed to the abdominal wall, by the careful insertion of numerous sutures before the artificial opening is made.—*Journal de Medicine*, May, 1877.—*Med. Review*, *N. Y.*

THE USE OF HYDROBROMATE OF QUININE IN DISEASES OF CHILDREN.—In a communication to the *Allgemeine Med. Central Zeitung*, Dr. Steinitz, of Breslau, gives the results of his experience of the use of hydrobromate of quinine in children's diseases.

He used it in an extensively prevailing epidermic of hooping-cough, giving it generally in a mixture composed of three to five parts of the hydrobromate in one thousand of syrup, the dose being a teaspoonful every two hours. In no case was it necessary to use any other remedies. The hooping-cough had in twenty-three cases lasted on an average ten weeks, and in fifteen others twelve weeks; and in the use of the remedy the paroxysms became in the course of a week less frequent and milder. No after-effects upon the alimentary canal were discovered. Three deaths occurred, all in very atrophic and scrofulous individuals, in whom other complications were present. Dr. Steinitz takes the opportunity of remarking that he prescribed in several cases the extract of castanea vesica, which has been extolled as a remedy, but without good results.

He also used the hydrodromate of quinine in cases of spasm of the glottis. Three of the patients died after

only a few paroxysms. The remaining six recovered. The medicine was prescribed as stated above, and was borne well. In all the six cases the attacks diminished, at times varying from the third to the fifth week, in intensity as well as in frequency; and the duration of the disease was in no case longer than from four so six months. This result is satisfactory when compared with the previous course of the disease under the use of other medicines, such as bromide of potassium, oxide of zinc, valerian, and musk, none of which could be borne for several months together.

Dr. Steinitz has also given the hydrobromate of quinine in the dental convulsions of children, but can not as yet speak of its efficacy in this malady. He regards it, however, as deserving a trial.—*London Med. Record*

Extirpation of the Uterus.—Dr. Noeggerath performed the operation of extirpation of the uterus at this hospital on May 11th. The patient suffered from cancer of the fundus. The operation consisted in cutting through the vagina anterior to the cervix, and separating the uterus from the bladder. The galvanic knife was then used to divide the vagina posteriorly. A large gum-elastic catheter, armed with a ligature, was then carried up along the anterior and down the posterior surface of the uterus, entering in front of the cervix and emerging behind it. To this was attached the chain of the *ecraseur*, which was tightened, and gradually one side of the uterus was freed from its attachment. A similar procedure resulted in separating the attachments on the other side, and then the uterus readily slipped out of the vagina. On examining the uterus the cervix was found to be perfectly normal. In the fundus, however, a cancerous mass was found, which extended down to the os internum. During the operation only a slight amount of blood was lost. This was due, in great part, to the fact that after incisions were made through the vagina a steel dilator was used, so as to enlarge the openings sufficiently to admit of the ligature and chain of the *ecraseur* being carried around the fundus. —*New York Medical Journal, June, '77.*

Treatment of Hydatid Tumors of the Liver. (*The Lancet, April 7, 1877*).—Dr. Wadham, after reporting a case of double hydatid tumor of the liver, which was rapidly destroyed by paracentesis of each cyst and withdrawal of

its fluid contents, proceeds to remark that the principal means suggested for the cure of these cysts were:

1. Simple acupuncture.

2. The electrolytic treatment (which consists in puncturing the cyst with two fine needles, attached by means of metallic wires, to the negative pole of a galvanic battery, and applying over the integument in their neighborhood a moistened sponge connected with the positive pole).

3. Paracentesis, and withdrawal of the fluid contents of the cyst by some form of aspirator.

4. Puncture, with a view to allowing the cyst to be subsequently destroyed by suppuration.

Of these methods he considered the last, in whatever way performed, needlessly painful, always tedious, and open to many sources of danger. Acupuncture and electrolysis, even if they could be relied upon, had also both of them the disadvantage of leaving for a long time in suspense the success or failure of the operation; the gradual dispersion of the tumor, when so treated, often occupying many months. If the cures following these forms of operation were, as he believed, simply due to the gradual escape of the fluid contents of the cysts into the cavity of the peritoneum, he considered that in paracentesis and withdrawal of the fluid by some form of aspirator, we had a safer and a far more expeditious mode of treatment. This latter was, therefore, the operation for which he had a decided preference. The instrument which he had used, instead of any form of aspirator, was the same that he had frequently employed in paracentesis of the chest. It was simply a double action glass syringe, which admitted of the fluid being gradually withdrawn from the cyst without the admission into it of any air. It had, in his opinion, the advantage of allowing the operator to regulate, in a manner not possible with an aspirator, the amount of force employed in withdrawing the fluid, and enabling him to judge, by the resistance experienced, when the operation should cease.—*Medical Times.*

Philadelphia, Pa., Aug. 1877.

To the Editor of the Cincinnati Medical News:

Dear Sir—My attention has been directed to the fact, that the name of the firm mentioned in my paper,

published in July number of this journal, is not Messrs. Bausch & Lomb, but "the Bausch & Lomb Optical Co."

By giving space to this in your journal, you will oblige

Very Respectfully. JOSEPH ZENTMAYER.

Editorial.

THE CINCINNATI COLLEGE OF MEDICINE AND SURGERY.—At the time of writing the building of this institution is being gotten ready for the coming course of lectures. Every thing is being arranged, as far as possible, for the comfort and convenience of the students that may be in attendance. No college has a building better adapted for its purposes than it.

It will be noticed that the fees have been made the same as those of the other medical colleges of the city. It will be remembered that some years ago, when the professors' tickets were held at $98 by it and its competitors, and the latter largely reduced them, it continued a session or so before making any reduction. Afterwards they made some advance, but were not followed in the increase by the Cincinnati College until now.

CHARITY HOSPITAL MEDICAL COLLEGE OF NEW ORLEANS.—We have received the Announcement, printed on two leaves, and making four pages, of this institution. Among a number of noticeable statements occurs this: "The teacher will go beyond the meagre and faulty representation of healthy and morbid tissues by means of so-called 'models' in wax or plaster alone, and will use the microscope and scalpel too." Certainly, this assurance is commendable. The student of medicine now a-days must be more thoroughly taught than those who were in attendance upon college no further back than ten or fifteen years ago. The advance that has been made in physiology and pathology and means of diagnosis has been very great; and as it is incumbent upon the physician, both by public opinion and the law of the land, that he should keep pace in his knowledge with the progress of the day, he should be able to unfold with the microscope and other modern instruments what they are able to exhibit. The careful and scientific physician daily employs his thermometer to know the temperature of his patient, and his

microscope to examine the sputa, urine, and other secretions. But while we commend teaching that includes what is developed by the microscope and scalpel, we do not indorse, for humanitarian reasons, the so free use of the hospitals as is implied in the following statement: "This is the advantage possessed by New Orleans, that her hospital wards are *every day open to every man engaged in the study of medicine* (the italics are the circular's). Such a free throwing open of hospital doors is neither conducive to the interests of medicine nor to the welfare of patients. Certainly, we would regard it to be a great misfortune to be a patient in a hospital in which we would be constantly exposed to the examinations of *every man engaged in the study of medicine*, and be the victim oftentimes of the rude handlings of the unlearned and inhuman. How can the course of disease be studied under such circumstances, or the effects of treatment be observed? Very often it must be difficult to decide whether the patient has died of his disease or been killed by the doctors.

DIATOMS.—Microscopists are very found of discussing the merits of lenses, and, in doing so, they very often make allusions and expressions that are necesssarily more or less unintelligible to readers who are not microscopists. For the information of such, and to enable them to read such articles in the MED. NEWS with more satisfaction, we have thought we would give a brief sketch of some of the diatoms as test objects, as they are constantly referred to as such. The article is not for the reading of microscopists, and they can therefore omit it.

Of minute organisms which professional microscopists have much to do are diatoms. These are not merely interesting as objects of natural history, to be studied as are any other such objects, but because they afford the principal tests for estimating the qualties of lenses of various powers. A lens magnifying a certain number of diameters should be able to meet certain requirements afforded by a particular class of diatoms, another lens of a higher power should be able to meet the requirements of another class of diatoms, etc.

Some naturalists assign diatoms to the animal kingdom, others are just as sure they belong to the vegetable. The majority, we believe, are disposed to regard them as vege-

table. Although they have motion, when living, as do the désmidiaceæ, yet all their other characters are unmistakably vegetable. Their casing is of silex, and resists the action of the most powerful acids, except that of hydrofluoric, which dissolves them. They are exceedingly small, so much so, that in the case of the large majority, when very many are placed upon a piece of glsss, it seems only to be covered with a very fine dust. Each separate portion is termed a "frustule," or "testule." They are found in sea water and fresh water, according to variety. Ditches, ponds, cisterns, etc. afford an abundance of them. From the stomachs of common fish—as the cod, sole, haddock, etc.—many specimens of diatoms may be obtained, but especially from the crab, oyster, mussel, and other shell fish. The city of Richmond, Va., is built upon ground that is said to be almost entirely composed of diatoms, and hundreds of the most beautiful varieties are to found in it.

But we have not set out to give a historical sketch of these most minute particles, so much so, that a single one would not be noticed by the unaided eye, and only when thousands are sprinkled upon a piece of glass it seems to be merely covered by a very fine dust. We only design to show how they are interesting to the skilled microscopic manipulator in testing the quality of his lenses.

Diatoms of every variety, small as they are, possess markings upon the surface. Some are rows of dots running close together in a regular manner; others are lines running, in some cases, transversely across the surface, in others longitudinally, in others diagonally. In some instances, there are two or more sets of lines crossing each other at different angles, as on the *pleurosigma angulatum*, where they cross one another at an angle of about 60°, forming lozenge shaped spaces. The most beautiful sight in the world, far more so than the most beautiful necklace or other ornament studded with sparkling diamonds, is that of a number of diatoms of different varieties regularly arranged by a skillful mounter on a glass slide, as seen through a fine microscopic lens. We have never witnessed any thing that would compare with the exquisite beauty as thus placed before the eye. It can be truly said of such an object that it has to be seen to be appreciated, for words would fail to convey an adequate idea of the wonderful beauty.

Whatever may be the character of the "markings" upon a diatom of a particular variety, each marking is of the most definite and exact shape, and disposed in regular order. There will not be, for instance, a dot here and one there, with lines intermingled without order. On the contrary, not the sligtest irregularity will be found existing. No work of the skillfulest artist ever exhibits more delicate, correct, and beautiful arrangement, more evidence of intelligent design to create that which is beautiful.

Art is now able to draw lines with a diamond upon glass of most wonderful fineness, so much so, that Nobert is able to execute those of such delicacy that it would require over 100,000, with their interspaces, to occupy an inch. Mr. Webb, of London, and we have one of his specimens, engraves the Lord's Prayer upon glass, with its 227 letters, so as to occupy only the one-twenty-thousandths, seven hundred and twentieth of a square inch, ($\frac{1}{20720}$) or, upon a space which, if the whole Bible, old and new testament, with its 4,703,440 letters, was engraved with the same fineness, it could be put upon less than an inch square. Yet these seemingly exquisite fine lines appear coarse and jagged under a fine lens, while the lines upon a diatom called *amphipleura pellucida* exhibit perfect smoothness, as do the lines on all diatoms.

When a microscopist wishes to test a lens to ascertain whether its performance is fully up to the standard which a good glass of its power, or degree of magnification, should reach, he selects from his cabinet a glass slide mounted, as it is termed, with diatoms having lines of certain fineness which, as is generally agreed upon, a lens of its power should be able to resolve and show clearly. If it does, he regards it as a good one; if it does not, he considers it inferior. Right here we will mention that resolution and magnification do not, as might be supposed by some, go hand in hand. A lens may magnify a desired number of diameters, and yet not possess sufficient fineness to bring into view surface-markings that one of much less power would readily do. Moller, of Germany, mounts upon glass slides twenty diatoms in a line having "markings" ranging in fineness from three or four to the one thousandth of an inch to over a hundred to one thousandth of an inch. The *pleurosigma angulatum*, a diatom more used than any other among microsco-

pists as a general test for medium powers, is the eleventh on the scale. It averages about fifty markings to the one-thousandth of an inch. A lens of a quarter inch focal length, magnifying about 200 diameters, of medium quality, will show these lines without difficulty. A fine one, of considerably less power, a half inch in focal tength, magnifying 100 diameters, will also do it. The next on the scale is *grammatophora subtilissima*, the lines of which, on an average, in comparing many of these diatoms, is over sixty to the one-thousandth of an inch, but there are some having over eighty, according to some measurements reported. *Surirella gemma* has two sets of lines, differing very much in fineness. The finest, the longitudinal, average over eighty to the thousandths of an inch. A lens of a focal length of a quarter inch, fifth, sixth, or eighth, especially if it is what is termed a dry one, that exhibits well the longitudinal lines, may be safely regarded as a very good one, and its performance in investigation in any department of science will be entirely satisfactory. Besides the test diatoms we have mentioned, there are many others, as the pleurosigma formosum, p. strigile, p. Balticum, p. hippocampus, p. quadratum, p. fasciola, p. macrum, navicula rhomboides, nitszchia sigmoidea, hyalodiscus subtilis, etc. There are some met with that there are reasons to believe possess markings of such fineness, that no lens has as yet been made, notwithstanding the great degree of perfection to which their performance has been brought, that can resolve them.

We might go on and speak of the value of many other diatom tests, and tests of other kinds, but probably, what we have mentioned will give those of our readers who are not microscopists sufficient insight to understand the allusions when the merits of microscopic objectives are being discussed. The scales upon the wings of many insects, such as the common butterfly, miller, mosquito, moth, etc., have markings which make beautiful and valuable tests for lenses of certain powers. Scrape the shining dust which has been left upon the fingers, after handling a butterfly, upon a glass slide, and examine it with a one inch objective of medium quality, magnifying fifty diameters, and it will be found to be composed of thousands of scales, each one of which is marked with fine lines regularly disposed. The scales of the podura afford tests for the highest and best powers.

Naphey's Therapeutics.—A new edition (*the fifth*) of this work is in active preparation. The editor has been assisted by several very competent gentlemen in special departments, and the work has received a most thorough revision, and very large additions. Indeed, so extensive are the latter, that the two parts into which the work is divided, viz: 1, Medical Therapeutics, and 2, Surgical Therapeutics, will each make a volume by itself, quite as large as that which embraced both divisions in the last edition (about 600 pages). They will be printed on handsome tinted paper, in the best style, and each part, as wholly independent, will be sold separately if desired.

Original in design, and carried out with vast research, this work may justly claim precedence in real, practical, everyday value, over any others ever issued by the American Medical Press.

Chemical Examination of Urine.—We publish this month an article on this subject by Dr. J. R. Nichols, from the *Journal of Chemistry*. It should be read and studied by all—especially young physicians. The chemicals mentioned in the article as appropriate for the examination of urine are all contained in the Reagent Cases of Billings, Clapp, & Co. advertised in our advertising form.

As regards a microscope we will say that one can be had for $30 that will answer very nearly, if not all, the purposes of a physician, besides affording him the means of a world of enjoyment in other departments of information.

The Popular Science Monthly Supplement is, as its name indicates, a supplement to the *Popular Scienee Monthly*. The following articles form the contents of the September number:

The Bible; The New Testament; Copernicus in Italy; Secret Societies in Russia; The Conditions of Life in Animated Beings; Dr. Carpenter on Spiritualism; A Study of Lower Life; The Trial of Jesus Christ; Vital Force; Predominant Delusions; Curiosities of the Voice.

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Original Contributions.

On the Disposal of Alcohol in Human Bodies.

By Z. COLLINS MCELROY, M. D., Zanesville, O.

Physician to City Infirmary ; Fellow of the Zanesville Academy of Medicine ; Member of the Muskingum County Medical Society ; of the Perry County Medical Society ; of the Licking County Medical Society, etc., etc.

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At the last Session of the Academy a paper was read on "Alcohol as a Therapeutic Agent," by one of the Fellows from Fultonham. It was seized upon as the occasion of extravagant eulogium on the one hand, and equally extravagant condemnation of views published by another of the Fellows on the same subject, by one whose chief mental characteristic was depicted three thousand years ago, by a sage of Judah, in the following words: "Seest thou a man wise in his own conceit? there is more hope of a fool than of him." Proverbs xxxvi, 12.

The paper by the gentleman from Fultonham was a very creditable production, but from the views advanced in it, confessedly obtained by the writer from books, it was evident he had not studied the latest and most authoritative work in the language on the subject. For, had he done so, it seemed to me quite probable that the tenor of his paper would have been somewhat different from what it was.

Many years since I read an elaborate paper on "Alcohol," to the Muskingum County Medical Society, which was published in the *St. Louis Medical Archives*.

Its preparation occupied many months, and I naturally became much interested in the subject then, and have

since watched the progress of investigation and experiment very closely.

It is but natural that I should embrace any fitting opportunity to make the only connection which time and added investigation has rendered necessary.

In that paper the then current belief, founded on the experiments of Lallemand, Perrin and Duroy, was adopted, viz., that alcohol entered the living body as alcohol, and was eliminated as alcohol, unchanged through various channels.

That view was first questioned by Dr. Anstie, of London, who conducted an elaborate series of experiments, to ascertain the mode of its disposal, which failed to confirm the conclusions of the French experimenters. The publication of Dr. Anstie's researches in the *London Practitioner* opened the question, which set many experimenters at work again to discover the mode of its disposal in living bodies. The conclusions of the French experimenters only represented part of the truth. For, only beyond a certain point, the point of super-saturation, so to speak, does any considerable quantity of alcohol leave the body unchanged. Under that point, very little, if any, escapes unchanged.

The enormous capital invested in its production, and the traffic growing out of it, together with the vast revenue derived from excise duties on distilled and fermented liquors in England, coupled with the enormous increase of pauperism and crime, fixed public attention on it, and led to parliamentary investigation. Under the belief that it was a food, its consumption by human beings among all classes became, and is still, very general and very large.

Parliamentary commissions could only deal with statistics. The settlement of the question, "Was it a food?" in any sense of the word, could only be done by science, by patient and pains-taking experiment and observation, on both man and inferior animals, by men qualified for the task by previous training in biological science.

The British Medical Association, in 1864, appointed a commission to investigate the influence on animal temperature of various remedial agents, and among them alcohol. At the head of that commission it placed B. W. Richardson, a justly celebrated physiological experimenter and investigator. The duties then performed were in

due course reported to the Association, and the commission dissolved. Prof. Richardson, however, did not close his investigations with his report to the Association, but continued them as time and opportunity permitted.

A gentleman by the name of Cantor had left a fund, whose income was to be devoted to paying the expenses of a course of popular lectures on scientific topics, annually, or otherwise, but I am without particulars. The trustees of the Cantor fund, in connection with the society of arts, selected alcohol as the subject, and Prof. Richardson as the lecturer, for the winter of 1874–5. Prof. Richardson approached his task with his own ample knowledge, together with the results of other workers, as Parkes, Wallowicz, and others, in a truly catholic spirit, resolved to follow alcohol from its entrance to its exit, in the living body, and express the results in plain language, and not in professional formula, as "stimulation," "narcotism," "sedation," etc.

In the first lecture he sketched the relation of its varied services to mankind. In the second, he briefly reviews the alcohol group of organic bodies, and their action on living bodies. In the third, the influence of common, or ethylic alcohol, on animal life—primary physiological action. In the fourth, its position as a food, effects on animal temperature, etc. Fifth, secondary action on animal functions, and physical deteriorations of structure incident to its excessive use. The concluding lecture continues the survey of physical deteriorations of structure; influence on vital organs, and mental phenomena induced by its use.

It will be at once observed from this summary that his labors covered the whole field of influence of alcohol on living bodies. And to day Dr. Richardson's is the only authoritative and exhaustive work in the English language on the subject it treats.

The lectures were widely printed in medical journals, in whole or part, at the time of their delivery. The author has since published them in a small volume through the house of Macmillan & Co., London, who have a branch house in New York, from whom I obtained my copy. I will make liberal use of it in this paper.

Except in the single particular of the disposal of alcohol in living bodies, my own humble monograph so accurately agrees with the conclusions of Prof. Richardson, that I

feel no little satisfaction in reviewing them after so many years of added investigation by such an array of competent and distinguished experimenters and observers.

I propose on the present occasion to place before you the positive knowledge gained by experiment and observation on the manner of its disposal in living bodies, though a complete solution of the problem has not yet been reached. But I am satisfied that the question, "Is it a food?" has been definitely settled, and settled forever.

My observations will be confined to Ethylic, or common alcohol. I may say, *en passent*, that the group of alcoholic bodies are extremely interesting in many respects. The most common are Methylic, wood spirit; Ethylic, from grain; Butylic, produced with other alcohols in the process of fermentation, and separated by fractional distillation; or distillation at fixed temperatures; Amylic, from the potatoe, or starch, the so-called fusil oil, the basis of the nitrite of amyl. Then there is mercaptan, sulphur alcohol; and the sodium and potassium alcohols; as well as others of the non-metallic group, regarding sulphur, potassium and sodium as metallic alcohols. The non-metallic differ from each other in their proportions of carbon and hydrogen. Thus: methylic, $C.\ H_2,\ O.$; Ethylic, $C_2,\ H_6,\ O.$; butylic, $C_4,\ H_{10},\ O.$; amylic, $C_5,\ H_{12},\ O.$; a regular increase of one atom carbon and two of hydrogen as you ascend in the group, the successive alcohols gaining or increasing in specific gravity, less soluble and less volatile. Methylic boils at 140°, ethylic 172°, propylic 205°, butylic 230°, amylic 240°, F., away above that of water. They have many properties in common, but differ widely in their effects in living bodies.

It was during these investigations that Prof. Richardson drew attention to the bi-chloride of metheline as an anæsthetic. It being lighter, more volatile, and containing less carbon than chloroform from ethylic alcohol, he concluded it would be safer than chloroform, which experience has thus far failed to confirm. But I must not linger over these interesting particulars. My purpose is to show how alcohol is disposed of in living bodies.

Particulars of anatomical structure, in the double nervous system, circulation, etc., must be borne in mind, as they exist in man, in studying the problem; it will be necessary to know, also, what becomes of alcohol when

exposed to the atmosphere, and the results of chemical treatment out of the body, in order to comprehend the changes it undergoes in the body.

Spread out, it evaporates rapidly, depending upon exterior temperature. Under fitting conditions it undergoes oxidation, resulting in the formation of the radical aldehyde and carbonic acid. A further oxidation of aldehyde may, and does, result in the production of acetic acid.

I wish to draw particular attention to this organic compound, aldehyde, which gets its name from its composition, being that of alcohol, less the equivalents of hydrogen necessary to form water—that is, it is a dehydrogenated alcohol, as it will be found to play a conspicuous part in the train of phenomena following the introduction of alcohol in living bodies. And, also, to another fact, that the decomposition of alcohol, under almost all conditions, is an exceedingly complex process. Thus aldehyde is, itself, the product of another, but hypothetical radical, acetyl, and bearing the same relation to aldehyde that ethel does to alcohol. Aldehyde, combining with two atoms of oxygen, forms acetic acid; with one atom of oxygen, aldehydous acid, etc.

This may serve to illustrate what chemists call "splitting up" of compound bodies into simpler combinations. A notable example is furnished by gas tar, as well as crude petroleum. We are all, perhaps, familiar with the wonderful educts of coal tar, when subjected to this "splitting up" process by chemical manufacturers, in the perfumes, brilliant dyes, known as aniline colors, carbolic acid, etc.; as well as from crude petroleum, from which about three hundred different products are obtained. By the addition of alkalies, acids, and other compounds, coupled with external conditions, as heat, confinement, etc., are all these wonderful results brought about.

It is worth while, too, to remember, that the peculiar character of any compound body, when subjected to such treatment, never wholly loses its peculiar effects on organic life, nor its distinguishing chemical features. Given any natural complex organic compound, such as cinchona bark, and crude opium; it is a feast for the chemist, for he can force decompositions, and the formation of new compounds at will. But they will all partake, more or less, of the character of the original. By no chemical

treatment can cinchona bark be induced to yield any of the peculiar compounds of crude opium. However treated, more or less of the distinguishing features of the original compound are maintained.

These things will materially aid in following and comprehending the mutations of alcohol through the chemistry of living bodies.

Let a moderate quantity, say half to one ounce of proof spirit, in half water, and half alcohol, be further diluted with two ounces of water, and swallowed by any one not habituated to its use, the sequence will be about as follows:

1st. Notice of physical contact with the structures of the lips and mouth, pharynx and œsophagus, will be transmitted all over the body through the channels of common sensibility.

Alcohol has such a strong affinity for water, that it will take it from wet structures with which it is placed in contact, until its solution is much attenuated. This will be the case with the parts between the lips and interior of the stomach.

2d. In the stomach undergoing further admixture with the watery contents of it.

3d. Passing directly into the venous blood stream, thence to the right heart, thence to the lungs. By the heat of the body some of it has been raised to vapor, which partially escapes at the lungs, giving the characteristic odor to the breath. I used to think this odor was simply liquor in vapor, but a closer study and observation has satisfied me that it is much more complex. That is, that the breath after alcohol, is alcohol, something more and something different. But of this more hereafter.

4th. Returning from the lungs to the left heart it is, with the blood in which it is mingled, distributed throughout the body in arterial vessels, and enters the capillaries.

5th. In the capillaries the bulk of the changes effected in alcohol take place, though possibly to some extent in the lungs. Almost to an absolute certainty aldehyde is one of the products, though with equal certainty there are various others.

6th. Aldehyde is an unæsthetic, and perhaps its first noticeable effect is the dilatation of the arterioles and capillaries, followed by the flush, which so speedily

appears after taking alcohol, and due to the increased volume of blood forced into them by the heart. It produces, so to speak, a paralysis of the vaso-motor tension of the arterioles and capillaries. This paralysis of vaso-motor tension of the arterioles and capillaries is not limite- to the cutaneous surface, but is co-extensive with thd capillary circulation in all the various viscera and texturee of the body. In health, this vaso-motor tension of ths arterioles and capillaries offers so much resistance to the passage of blood through them, as to hold the work of the heart in check to a certain extent. The suspension of the vaso-motor tension is followed by increased frequency oe its pulsations, and a large increase of the volume of bloo f in them. Simultaneously with these phenomena there id that sensation of increased warmth in the person, pers ceptible, also, to the touch of others. And, for a brief period, there is a rise in temperature, seldom exceeding half a degree F.

Other changes, only visible through the microscope, take place in the constituents of the blood itself, though by no means constant in the same person at different times, and in different persons due to variations in quantity of alcohol taken, and other conditions. Prof. Richardson says, "I have watched this disturbance very carefully on the blood corpuscles, for in some animals we can see these floating along during life, and we can also observe them from men who are under alcohol by removing a speck of blood, and examining it with the microscope. It may cause the corpuscles to run too closely together, and to adhere in rolls; it may modify their outline, making the clear, defined, smooth outer edge irregular, or crenate, or even star like; it may change the round corpuscles into the oval form; or in very extreme cases it may produce what I may call a truncated form of corpuscles, in which the change is so great, that if we did not trace it through all its stages, we should be puzzled to know whether the object looked at was indeed a blood-cell. All these changes are due to the action of the spirit on the water contained in the corpuscles, upon the capacity of the spirit to extract water from them. During every stage of the modification of corpuscles thus described, their function to absorb and fix gases is impaired, and when the aggregation of the cells in masses is very great, other difficulties arise, for the cells united together pass

less easily through the minute vessels of the lungs and of the general circulation, and impede the current, by which local injury is produced."—Page 45.

I am the more anxious to impress on you the phenomena of this first stage, so to speak, for right there are the so-called "stimulant" effects of alcohol, if there are any anywhere, or at any time from it.

A "stimulant," according to Dunglison's definition, is "A medicine which has the power of exciting the organic action of the different systems of the economy."

There can be no error in the tracery of alcohol from its entrance at the mouth to its reaching the lungs and arterioles and capillaries. What happens there is just a little less certain, because the phenomena there are just a little "too fine for mortal vision;" and hence has to be judged to some extent by its results. The suffusion of surface; its increased warmth; the increased frequency of the heart's action; and volume of blood passing through the larger arteries, can only be brought about as I have stated. Other things besides alcohol accomplish the same results, and in exactly the same way. Thus, the most conspicuous effect of the "stored up force" of belladonna is the flush of the cutaneous surface, with corresponding increase in the frequency of the heart's action, and volume of the circulation, while opium does exactly the reverse, viz., increases the vaso-motor tension of the arteries. Hence, the pallor of the surface under large doses of opium, with decrease of the pace of the heart's action, as well as the volume of the circulation. They are very correctly termed "antagonisms" in medicine, each undoing the work of the other. But there is no "stimulation" in the action of either, but a reduction of nervous force common to both. Belladonna does not increase the sum of energy in the heart's work. Nor does opium increase nervous force; for what is gained apparently in vaso-motor tension is exactly balanced by decreased work of the heart.

It was by observing and studying the effects of nitrite of amyl in his own person that gave Prof. Richardson a clue to the effects of a group of substances affecting organic fibre in the same way as if it were divided. Ether, alcohol, and the nitrites possess it in the highest degree, viz., relaxation of arterial tension.

Alcohol undergoes chemical metamorphosis. The first change is the oxidation of a portion of its hydrogen, the

result being the formation, or, so to speak, residue, of aldehyde, which expends its force in suspending vaso-motor control of the arterioles and capillares. This lightens the burden of the heart; its throes are fuller and more frequent, not from any stimulation, or "urging, or goading on," as Webster defines it; not from any addition that alcohol makes to the sum of force available for life's purposes, but from a decrease of nervous energy in the tension of the arterioles. It must not be supposed that the conversion of alcohol into aldehyde, or other secondary or tertiary products, take place instantly; or that all of the alcohol arriving in the arterioles and capillaries is changed before leaving them. On the contrary, portions of alcohol may pass the rounds of the circulation many times before it is decomposed. And if the point of saturation, that is, more alcohol has been introduced than it is possible for the body to decompose, it may, nay, it must, find exit in the same condition as it entered—viz., as alcohol. It may exude through the skin, escape at the nostrils, find exit at the bladder, or at the bowels. And to this escape is due the immunity from speedy evil consequences of excessive indulgence. For, if it were retained, and the system compelled to decompose it, to get rid of it, it is safe to say that death from its excessive use would be much more frequent, and much more prompt than it actually is in life. Nor is it a matter of much moment what further changes these secondary and tertiary products of its first decomposition undergo before their final exit from the body. The distiller spoiled the grain from which it was made for food—that is, material which can be used in the construction of living tissue, capable of performing a function, and providing for its own reproduction from new material. Every change in chemical structure must be to simpler chemical states.

In the process of dehydrogenation, or oxidation of a part of its hydrogen, there is a liberation of force, heat, and that may be the heat that is felt, and manifest to the touch of others, though Prof. Richardson says not, while alcohol is undergoing the process of splitting up, formation of aldehyde, and other secondary and tertiary products, be they carbonic acid, acetic acid, or water, or other forms of matter.

From the moment of loss of vaso-motor control of the tension of the arterioles and capillaries, the formation of

structure is much decreased, or, possibly, temporarily suspended; for very speedily the second stage of alcoholic disturbance of the system is ushered in, characterized by a decrease of the power of co-ordination of voluntary action, unsteady gait, confusion of intellect, derangement of speech, etc.; in a word, the noisy and meaningless phenomena we call intoxication.

If sufficient alcohol has been taken, whether at once, or at several times, the third stage of anæsthesia, more or less profound, or very slight, is ushered in—the phenomena called "dead drunk." And if what would be called a "poisonous dose," or doses, have been taken, that is, sufficient to derange the involuntary actions of the body—suspend, or reduce nervous energy beyond the point at which life can be maintained—death closes the scene.

It seems to me, therefore, that the phenomena on which the conception of the so-called stimulant action of alcohol in living bodies has heretofore been based, has been demonstrated to be due to a decrease of nervous control of the arterioles and capillaries; and that the increased frequency and volume of the circulation—heart's action—is not due to any added strength, but a lessening of the load of the heart in passing the blood through the arterioles and capillaries; that the heat may be due to the chemical changes effected in alcohol in the capillaries, and that the whole of the phenomena is due to decrease of nervous energy, brought about by the anæsthetic aldehyde.

Is alcohol a food, in any sense of the word? I will quote from Prof. Richardson. After surveying the various articles of food used by living beings, he says:

"We have now before us the constructive or building parts of an animal body. Excepting the water, the salts, and the fat, they all contain nitrogen, and they take their specific quality from that specific fact. We know that the source of them is the vegetable kingdom; that they are formed by Nature in that kingdom; are transferred from the vegetable to the animal; are not made by any natural process within the animal; have not yet been made by any artificial process known to the chemist, and can therefore only be supplied from the one natural source of supply.

"Alcohol contains no nitrogen, it has none of the qualities of these structure-building foods; it is incapable of

being transformed into any of them; it is therefore not a food in the sense of its being a constructive agent in the building up of the body.

"In respect to this view there is, I believe, now no difference of opinion among those who have most carefully observed the action of alcohol. There is, however, a difference in relation to its action as a fat-forming food. It appears to be in evidence that men and animals, beginning while in a perfect state of health to take in excess certain fluids containing alcohol, become fattened. Notoriously ale and beer fatten; and in certain parts of the country certain animals—calves, for instance—are rapidly fattened by the process of feeding them with a mixture of barley flour and gin. But through all these apparent evidences there may run an error. The fattening may not be due to the alcohol itself, but to the sugar or starchy material that is taken with it. As a matter of general experience on which I have tried to arrive at the truth with as much accuracy as can be obtained, I am led to the conclusion that pure spirit drinkers among men, I mean those who do not mix sugar with the spirit, and who dislike spirit which is artificially sweetened, are not fattened by the spirit they take. This tallies also with the observations on the action of absolute alcohol on inferior animals, for they certainly, under that influence, if they are allowed liberty to move freely, do not fatten.

"The question of the effect of alcohol in fattening presents still another difficulty. Alcohol, when it is largely taken, unless the will of the imbiber be very powerful, is wont to induce desire for undue sleep, or at least desire for physical repose. Under such conditions there is an interference with the ordinary nutritive processes. The wasted products of nutrition are imperfectly eliminated, the respiration becomes slower and less effective, and there is set up a series of changes leading, independently of the alcohol as a direct producer of fat, to development and to deposit of fatty tissue in the body. All these circumstances militate against the hypothesis of the origin of fatty material direct from alcohol; nor is there any obvious chemical fact that supports the hypothesis. We understand, chemically, the transformation of starchy matter into one form of sugar, and we infer that in the animal body sugar is transmutable into fat. We know, also, that we can transmute sugar into alcohol, but as yet we see no

way back from alcohol into sugar; if we did, the difficulty of tracing alcohol into fat would probably be over.

"Physiological argument, nevertheless, lends some countenance to the view that alcohol may, by an unknown process, be transferable into fat. It is true that some confirmed alcoholics, who do not wax fat in the ordinary sense of the term, that is to say, who do not fill out with fat, from the separation of fatty matter in their cellular tissue outside of vital organs, do, in certain instances, undergo a process of fatty change within their organic structures. Their muscles, including the heart, become the centres of the degeneration called "fatty," and by the interposition of cells of fat in the minute muscular elements, the activity of the fabric is destroyed, sometimes to a fatal destruction. The same degenerative change may extend, also, to other organs, to the brain, and to such active glands as the liver and kidneys.

"At first view it occurs to the mind that here is evidence of effect upon cause. At the same time it is not so clear that the effect is direct from alcohol; for when we proceed to examine into all the data that lie before us, we discover such an absence of uniformity in differing examples of the fatty change, that we lose alcohol as the clue to discovery. Some alcoholics truly present the modification of tissue, other alcoholics do not present it, so that alcohol may be in active operation, and may neither be promoting the production of fat from other material, nor yielding it. Lastly, the fatty change of tissue may progress in the absence of alcohol; in the tissues of those who altogether abstain.

"In conclusion, therefore, on this one point of alcohol, its use as a builder of substantial parts of the animal organism, I fear I must give up all hope of affirmative proof. It does not, certainly, help to build up the active nitrogenous structures. It probably does not produce fatty matter, except by indirect and injurious interference with natural processes.

"If alcohol be not a substance out of which the animal tissues are formed, may it not be a source of energy, of actual motion; may it not supply the power of doing work? Alcohol, we see, contains two elements that will burn in the presence of oxygen, viz., carbon and hydrogen; and although by their combination already with oxygen in the alcohol, a certain measure of their poten-

tial energy is lost, they are still capable of combining with more oxygen. This is proved by various experiments. When alcohol is burned, that is to say, when its combustible elements combine with free oxygen, there results from the chemical combination a certain degree of heat. The heat produced does not approach that obtained by an equal weight of hydrogen, it is not so great as that produced by an equal weight of carbon, but it is greater than that caused by the combustion of phosphorus, and very much greater than that caused by the combustion of sulphur.

"The combustion thus spoken of is that active combustion which is excited when a light is brought into contact with alcohol, so that its vapor may burn. But it is not actually necessary that instant active combustion should be set up. If we distribute alcohol over a wide surface in the presence of some chemical substances, it will then, by its combination with oxygen, liberate a greater or less degree of heat. If we saturate a portion of paper with alcohol, and on that paper pour a little of the finely divided powder called platinum black, we at once get evidence of heat, which may be so active that perfect combustion may ensue. In this instance the alcohol is transformed, as in burning, in great part, nay, it may be altogether, into carbonic acid and water, which means the completed combustion. If, in place of absolute alcohol, in this experiment, we were to use alconol diluted with water, then instead of obtaining the active combination and combustion, we should get a slower oxidation with the production of substances to which attention has already been directed, viz., aldehyde, acitic acid, and volatile acetic ether."—Page 61 to 65.

In putting before you the inquiry, "Does alcohol cause increase of animal heat," I am prepared to answer it by direct knowledge gained by individual experiments. In the course of some researches I had to make for reports rendered the British Association for the advancement of science, it became part of my duty to ascertain what effect certain chemical agents exert over animal temperature. Among these agents was alcohol. * * * It were impossible for me to recount the details of the long research—extending, with intervals of rest, over three years—which was conducted in my laboratory, to determine the influence of alcohol on the animal temperature. The

effects were observed on warm-blooded animals of different kinds, including birds; on the human subject in health, and on the same subject under alcoholic disease. Similar experiments were made in different external temperatures of the air, ranging from summer heat to ten degrees below the freezing point. The whole were carried on from experiment to experiment, without regard to comparison or result, until the general character of result began to proclaim that a rule existed which could rarely be considered exceptional.

"The facts I obtained I may epitomise as follows:

"The progressive changes of animal function from alcohol are four in number. The first is a stage of excitement when there exists that relaxation and injection of the blood vessels of the minute circulation with which we have become conversant. The second is the stage of excitement, with some muscular inability and deficient automatic control. The third is a stage of rambling, incoherent, emotional excitement, with loss of voluntary muscular power, and ending in helpless unconsciousness. The fourth and final stage is that in which the heart itself begins to fail, and in which death, in extreme instances of intoxication, closes the scene. These stages are developed in all warm blooded animals, and the changes of temperature throughout the whole are relatively the same.

"In the first stage the external temperature is raised. In man it may rise to half a degree, and in the confirmed inebriate to a degree and a half. The heat felt in this stage might be due to the combustion of the alcohol; it is not so; it is in truth a process of cooling. It is from the folding of the larger sheet of warm blood, and from the quicker radiation of heat from that larger surface. During this stage—comparatively brief—the internal temperature is declining, the expired air from the lungs indicating, not an increase, but the first period of reduction of the amount of carbonic acid, and the reddened surface of the body is so reduced in tonicity that cold applied to it increases the suffusion. It is this most deceptive stage that led the older observers into the error that alcohol warms the body.

"In the second stage the temperature first comes down to the natural standard, and then declines below what is natural. The fall is not considerable, confined to three fourths of a degree.

"During the third stage the fall of temperature rapidly increases, and as the fourth stage is approached it reaches a decline that is actually dangerous. In man it is often from $2\frac{1}{2}$ to 3°. * * We are landed at last on this basis of knowledge: An agent that will burn and give forth heat, and other products of combustion outside of the body, and which is obviously decomposed within the body, reduces the animal temperature, and prevents the yield of so much product of combustion as is actually natural to organic life.

"What is the inference? The inference is that alcohol is not burned after the manner of a food, which supports animal combustion; but that it is decomposed into secondary products, by oxidation, at the expense of the oxygen which ought to be applied to the natural heating of the body."—Pages 69 to 72.

Limits, which it would be impolitic for me to exceed, compel me to omit many interesting facts, obtained by direct experiment, observation, and accident, in regard to the modus operandi of alcohol in human bodies. My purpose has been to place before you what is positively known in regard to the disposal of alcohol in the human system. The conclusion, forced on my mind from my careful and protracted study of its effects in human bodies, is, that its mode of operation, as well as the methods of its disposal, are as well understood as that of the wheaten loaf. It is not a food, that is, supplying material to build up any of the tissues of the body, under any circumstances whatever, singly and by itself. Nor is it a force; that is, by its decomposition, it supplies no force that is valuable, only under exceptional conditions. Since I have come to understand its possible and actual effects in human bodies so clearly, as it seems to me I do now, I have much less use for it as a therapeutic agent than I had when I vaguely considered it a "stimulant," seeing that whatever of stimulation there are among its effects are due to a temporary paralysis of the vaso-motor tension of the arterioles and capillaries. In conlusion I may sum up what I have endeavored to place before you as follows:

1st. That alcohal, in whatever way, or in combination with any other material, introduced into the human body, up to a certain point of saturation, so to speak, undergoes, in the main a process of "splitting up," by oxidation,

into various chemical compounds; not always the same in the same person at different times, nor in different persons at the same, or different times.

2nd. That the most common is the formation of aldehyde, aldehydorus acid, acetic acid, and acetic ether, as well as carbonic acid and water, and perhaps other very unstable compounds.

3rd. That beyond a certain point of saturation, more of it escapes by lungs, kidneys, etc., as alcohol, than under the points of saturation.

4th. That it is in no sense, of itself, and by itself, a food in the same sense as wheat bread, milk, etc.

5th. That it is not, in any sense, a "stimulant," and does not store up a mode of force in its material, which, by any chemical changes it may undergo in living bodies, add anything to the sum of force available for the ordinary purposes of life.

6th. That its primary effect is to suspend, or paralyze, the vaso-motor tension of the arterioles and capillaries; with much probability that this effect is due to the anæsthetic properties of aldehyde, one of the products of its oxidation in living bodies.

7th. That the action of alcohol, after the vaso-motor paralysis of the arterioles and capillaries, is that of an anæsthetic, reducing temperature; lowering sensibility; deranging the automatic functions of voluntary and involuntary viscera and structures.

8th. That the more closely its effects are studied, and the modes by which they are brought about, the less occasion I find for its therapeutic use as a physician.

9th. That its use, as a medicine, is mainly to lessen arterial tension, thereby lightening the burden of the heart, and limiting the speed of tissue metamorphosis, when such indications are to be fulfilled.

Finally, I am almost, if not quite, prepared to accept the conclusion of the New England chemist, Nichols, that alcohol is now a convenience, but no longer a necessity to the human family; and that it would be better for them if its manufacture, and the traffic growing out of it, were both blotted out from the world's industrial pursuits and commerce.

The Address

Of GEO. H. PICKARD, A. B., M. D., of Illinois, of the Graduating Class of the Cincinnati College of Medicine and Surgery, at the Commencement, held June 21st, 1877.

Mr. President, Ladies and Gentlemen:

The individuals who figure most conspicuously in our memories as the actual heroes and heroines of the somewhat mystical past, are not those alone whose virtues, like a perpetual sun, having once risen can never cease to shine. By some strange conformation of our natures, the spirit of truth which would compel us to profess an ardent admiration for virtue, would, just as truly, oblige us to avow a deeper affection for qualities far less noble than virtue; so it cannot be truthfully said, that men are remembered for their virtues alone. Who, for instance, ever thinks of the Roman Emperor Nero with such horror that his blood runs cold, and proceeds to go through that wonderful *pseudo-pathological* change popularly denominated, "curdling in the veins." This is not our Nero. We will have no blood-thirsty, monstrous Nero. Our Nero is an ideal Nero; a lovely and æsthetic Apollo, pictured sitting on the housetops, his golden locks aglow with the lurid light his own fair hands had kindled. And when the inspiration came, he sang. True, the tender flesh of the martyrs grew crisp and quivered in the sea of fire, and enraged beasts buried their gleaming teeth deep in the tortured bodies of the saints; but the song Nero sang is not less melodious to us of to day. Our Nero was a divine singer.

There was a storm of indignation when, not long since, Mr. Anthony Froude attempted to add another page to the sorrowful story of the ill-fated Queen of Scots. He asked us to give up our fair, persecuted daughter of Stuart, and offered us in exchange, a beautiful, sinful creature, the murderess of the boyish Darnley, the guilty companion of the ferocious Bothwell, the tool of the designing Rizzio. But we refused to give her up; and though her garments may have been deep-dyed with the blood of her victims, she is to us the same gentle Mary, whose sad and exquisite face won our courtliest feality in our boyhood days, those days of chivalry.

And the strangest thing is that time exerts so little influence over our discretion and reflection. No lapse of years has ever smoothed the hypocritic virtue from the impassive face of the English Elizabeth, nor softened the stern outlines of her unyielding form. The sad story of the Egyptian, Cleopatra, melts our sentimental hearts to day, as it moved the pity of the injured Octavia so many centuries ago, and the Cleopatra our sober judgment gives us is not our Cleopatra, the enchanting siren, who was so odorously wafted down the Nile in a golden boat to welcome her dear Mark Anthony.

It cannot be affirmed that virtue has always been rewarded by an elevated position in our morally frail memories. We contemplate virtue in the abstract, and admit that it is a good thing, an admirable thing, none nobler, in the abstract; but we do not cherish it, and we do not thirst after a recital of the histories of its almost forgotten exponents.

Take, for example, a Cistercian monk, who from his earliest years has devoted his untiring energies to the acquirement of this somewhat rare thing. He gives his youth, his manhood, and his ripe old age, a living sacrifice, a mortal tomb, sealed to the allurements of earth, awaiting no resurrection save a glorious translation to an ideal land of virtue. He has no home, no friends, the very beasts shun his footsteps. What is the reward of such superhuman effort? True, his name and his story lie fair enough, odorous with the rather ponderous perfume of sanctity; but one half the world admires with a sort of holy horror, while the other half smile incredulously, and fail to recognize the merit.

It is, in fact, untrue, that merit possesses in itself a wonderful something which cannot fail to be recognized under any circumstances whatever. Many a man in whose soul the fire of genius burned like a living revelation sleeps in a grave as lonely and forgotten as the neglected spot where rests some tired and humble wayfarer. And as it is with individuals, so, also, is it with things. Many a science, born of intensest mental effort, and fed with the consuming devotion of sages, now rests as unremembered and unsought as is the fabled elixir of life in these matter-of-fact days.

Ladies and gentlemen, there is another still more striking example of the strange fatality which overhangs the course of individuals and things.

Theology, the law, and medicine, have been styled the noble and learned professions. Which is noblest?

It is not to be disputed that all forms of religion were originally ideals of perfection, since the originators of all of them have been regarded as divinities by those who accepted their doctrines, and divinity cannot err *per se.* To us, the christian religion, created, revivified and regenerated by a God, of whose attributes we profess to have some knowledge, is the most transcendental form of philosophy which we are capable ot conceiving. To the Mohammedan, the vagaries of the Prophet are not less above reproach and perfect; while the Brahmin beholds the pure and undefiled truth in the poetic imagery of the great Reformer. Who can conceive of a more magnificent creation than a religion fresh from the hand of a divine Author? Complete—there is nothing to be added or remodeled; sufficient; comprehensive; the only essence of all possibility.

It is not wise to cast any reflections upon one's fellow creatures, especially upon those who may have been unfortunate; and it is altogether probable that we have long ago forgiven those to whose efforts we owe our depravity—our far-removed first parents—but how can we refrain from exclaiming, "Is it a thing to be wondered at, that a trust so divine as religion, confided to the keeping of a mankind so depraved, should go astray and lose its entity and its moral force?"

How divine, how glorious in the beginning? How fallen, how degenerate to-day? It is not that there is any fault or flaw in the philosophy—it is far beyond criticism—but rather the unkindness of men, who do not remember good things, and who do, unfortunately, forget them.

It can be affirmed, then, that religion is not as perfect as it was in the beginning, because men have forgotten and neglected its perfection, and on that account it has degenerated as a power, though it may have lost nothing in principle. Scarcely less lofty in its conception is the origin of the law, and the mystery of its formation is even greater. What happened during the terrible days which Moses spent upon the mountain-top, face to face with an awful law-giver, must never be divulged to our curious souls. It is amply sufficient for us to know, that as he descended, his face yet shining with the dreadful, trans-

mitted glow of divinity, he bore with him the foundation of the law, recorded on the tables of stone.

The law, the written law! Who has preserved it? It was esteemed so divine a thing, that the early church administered it; and for centuries the blood of martyrs flowed generously in their efforts to maintain the right; and to-day the head of a great branch of the church mourns and refuses to be comforted because it is denied him.

But alas! what is the law of to-day? The tool of designing tricksters; the plaything of corrupt politicians; the refuge of sinners, and the means by which they escape the just punishment an indignant public is but too willing to inflict upon them; the burden of the innocent; the shield and comfort of the guilty; a chain to the oppressed; a burden to an already stricken humanity.

Is there anything noble that yet remains to this offspring of such brilliant hopes? What a barbarious relic of lost inspiration and hope! In the quaint words of an ancient English bishop: "Oh men, how vainly do ye fashion God's truths to fit your sad unrighteousness!"

The horoscope of the healing art was cast under no such divine auspices. No divinity has ever prescribed the means by which the frail and worn mechanism which constitutes our life and action can be renewed at will. The merciful Providence who has provided a cure for our diseased moral natures can hardly be said to have afforded any information as to the precise method of treating unspiritual aches and pains, since they formed no part of our original creation, but are of extraneous growth. It is true, that the means of our physical salvation makes green the earth, and blossoms on the hill-sides, and rises and falls in the flow of the great seas; and it would be rank heresy to doubt that God has given them; but with no light other than that of reason or less noble experiment our fathers in medicine have dug and drained and sifted through the hundreds of years. And all this time the proud splendor of the church and the finished magnificence of the law have glistened with golden perfection—secure in their divine origin.

The story of the rise and progress of medicine is not less voluminous than the history of nations. It is the story of the physical ills of mankind through all the centuries, and no one need presume to tell it. Its foundation was obscure—memories of soothsayers, of enchanters, of

false prophets, of miracle-workers, of alchemists, of the black art, of potions, of lore draughts, of charms, of counter-charms, flood its early pathway, and cling to the skirts of its ancient garments, which are carefully laid away in its museum of antiquities. A half-established science, a barely tolerated art, a sometimes doubtful avocation—an always mysterious thing—its only salvation has been its wondrous earnestness and man's sad necessity.

Such a science needs not the *prestige* of tradition nor a perfect origin to advance its reputation or establish its claims. It is enough that medicine is the most splendid structure ever designed by man; that it has, in an unequal race, totally eclipsed the originally perfect sciences; and that it exists to-day the most magnificently exact of the professions.

My fellow-classmates, we are the true priests!—the consecrated priests of humanity. The altars we serve are reeking with the tears wrung from sorely tortured bodies —the poor frail bodies of an afflicted mankind. And, as we stand on the steps of our sanctuary, and look down at the kneeling, stricken multitude below, we are conscious of a wilderness of outstretched arms—the brawny arms of the sons of labor rising side by side with the perfect snow-white arms of youth. It is a mute appeal for help—a grandest signal of distress. What a sea of upturned faces! The pinched and wasted features of old age, praying for one more renewal of life; the anxious face of strong manhood, prostrate by some sudden chance; the lovely face of youth, hopeful even in death; the innocent face of childhood, helpless and dearer than all.

And the cry that rises and falls in the vaulted temple of our ark; it is more pathetic than the most soul-stirring adagio ever conceived by the most consummate master of tone, for it is the heart harmony of bruised and tortured souls.

We are indeed the priests! And who shall say there is a nobler ministry than this! Can one do nobler than to give himself a willing sacrifice to the woes of his suffering fellow creatures? Did the zealous Xavier, or the martyred Catharine of Sienna yield their precious lives more fearlessly or less selfishly?

My class-mates, there is a cry for help; let us go down to them.

Mr. Dean, and Gentlemen of the Faculty, all these words have been but a prelude to something else; a sort of pretext for putting off a little longer a something which must be said—and it is not easy to say it. It is not so common a thing, now-a-days, to meet an agreeable and friendly party of gentlemen, that one need suffer no feeling of regret when they must separate. I cannot say, gentlemen, that any member of this class is sorry that he has to night realized the dream of long ago; but I can say, truthfully enough, that there is not one among us who does not feel to night what it is to part from true and tried friends. Mingled with the joy and thankfulness we feel to night, there is a sad and inexpressible thought that we are not, in the coming days, to hear your familiar voices grow eloquent with the themes so dear to them. It is a joy to us that we can at least thank you for your uniform kindness to us and your earnestness for our progress—often, strange to say, far more intense than our own.

We have discovered nothing of the College Dow about you, gentlemen. To that mysterious and arbitrary body, which is popularly supposed to sit in high state, prepared to scatter matters right and left, before and behind, we have found no counterpart in your honorable body. We have, at all times, found you easy of access, and I dare say we have given you cause to regret it.

But this is hardly all, gentlemen; we have resolved, while we have the advantage and the floor, to say a little more, even if you blush somewhat to hear your own praises. That quaint Spaniard, Cervantes, long ago wrote, "Blessed is the man who can blush at the good mention of his name." It shall not be said that we forget how faithfully you have served us, and how conscientiously you have drilled us in the various branches you represent. We bear your cheerful testimony that the Cincinnati College of Medicine and Surgery is not one to which a dweller in the obscurity of the rural districts would confidently send the following order: Mr. Dean:—Please send by return express *one Diploma*, C. O. D.

We are satisfied with the College and proud of her. The course she has pursued in the past has been an eminently honorable one, and we are fully assured of her future prosperity, to which we will willingly contribute our heartiest efforts.

Gentlemen, it is a little word—a homely English word —and we say it—Good-bye.

Keratitis.

By W. R. Amick, M. D., Cincinnati, Ohio.

Case I.—John G., æt. 31. When five years of age he had an inflammation of the right eye. Says that it was the result of cold, and, from his statements, suppose he had purulent conjunctivitis. Ever since that time he has had an opacity of the cornea, which proves that he had corneal as well as conjunctival trouble. Has not had any ophthalmic trouble from that time until the present, with the exception of the right eye being weak. From the time of the attack the sight in the right eye has never been as good as that in the left, although he can read ordinary newspaper print for a few minutes with it; then the letters become blurred, and he cannot distinguish one word from another.

On the 15th of August the right eye became inflamed without any assignable cause. It continued to get worse, and in a few days the left eye began to get sore. Both eyes became very sensitive to the light, and a day or two later the right eye had to be protected, as the light was unbearable.

I saw the patient first on the 21st of the month. He complained of severe, darting pain in and around the right eye-ball, with some pain above the left eye. The conjunctiva of the right eye was considerably congested; that of the left was also inflamed, but not to so great an extent as that of the right. Around the cornea of the right eye was a well marked rosy zone. Around the left cornea there existed a slight corneal congestion. On the cornea of the right eye, a little external to and just below the centre there existed an opacity about three times as large as a pin's head. This is the opacity referred to above. The opacity was round and deep, involving the entire thickness of the cornea. On the anterior surface of this opacity was an ulcer, triangular and shallow. The ulcer did not involve all of the opacity, but as much of it as a triangle would drawn in a circle of that size. There existed an anterior synechia between the external and inferior portion of the pupillary margin of the iris and the posterior portion of the opacity. As a result of this, the pupil was drawn out of place. It was not displaced in the direction of the

ulcer, but was drawn so that its margin extended to the middle of the superior internal quadrant of the cornea.

The iris, with the exception alluded to, was normal. With the exception of hyperæmia in the retina of the right eye, there was no other trouble existing in either of them.

The treatment consisted first in protecting the eye from the light. A bandage was placed over the right eye, and a shade over the left. A four-grain solution of atropine was used every two hours in the right eye. Having the evidences of having had syphilis, he was given the advantage of an anti-syphilitic treatment. In the course of three or four days the ulcer began to diminish in size, but maintained its triangular shape, the apex being upward, and the base downward. There were no applications made to the left eye, but as soon as the ulcer began to heal in the right, the arterial congestion began to disappear in the left, and at the end of a week was entirely gone.

The congestion disappearing in the left eye by the treatment in the right would prove that the former trouble was sympathetic. The anterior synechia, which produced the displacement of the pupil, caused the right eye to be in a more or less irritated condition, as the light did not impinge upon the same portions of the retina of this eye as of the opposite one. The ulcer in the right eye closed up in ten days, with the exception of a little point, about half the size of a pin's head, directly in the center of the opacity. This remained stationary in size for nearly a week, and then disappeared, leaving the eye in as good condition as it was before the trouble began.

Case II.—Anton R., a baker. Sept. 2d, his right eye began to inflame, and in a short time severe pain would be produced whenever he would look at the fire. That night the pain in and around the right eye was so severe that he could not sleep. The next morning it was some better, but got worse during the day. It felt as if there was sand or dirt under the lids. In addition to the circumorbital pain there was a very marked congestion of the palpebral conjunctiva. The circum-corneal rosy zone was well marked. There was considerable lachrymation and photophobia, the latter amounting to blepharospasm when an ordinary amount of light was admitted to the eye. On the cornea, directly over the center of the pupil, there

existed a small, round ulcer, with very sharp, abrupt edges. It was deep in proportion to its size. All around it the cornea presented a nebulous appearance, the result of infiltration of pus between the laminæ of the latter organ. He was treated with a five-grain solution of atropine every two hours, and a bandage, with a light compress, placed over the eye. The ulcer continued to extend deeper and deeper into the cornea until the end of the third day, when a little bead presented itself at the bottom of the excavation. This indicated that the ulcer had extended to the membrane of Descemet, and the latter membrane was being forced outward by the intra-ocular pressure. Paracentesis was performed, evacuating the contents of the anterior chamber, and then a compress bandage was applied. The next day the aqueous-humor had reaccumulated, and another bead presented itself. This was tapped the same as before, and the bandage reapplied. This operation had to be performed twice more, when this condition passed away. The ulcer then began to improve, and continued to do so until the excavation had entirely filled up. Atropine was used during this time. There is some cloudiness or opacity of the cornea remaining to mark the location of the ulcer, but that is disappearing under the insufflation of calomel.

NUSSBAUM'S NARCOSIS.—(*Neus Rep. of Pharm., 1876. New Remedies, March 15, 1877*). The peculiar state called Nussbaum's narcosis, produced by the subcutaneous administration of a few centigrammes of morphia, about fifteen minutes previous to placing a patient under the influence of chloroform, has already been known for some time, and made use of with great benefit during operations in the mouth or in the fauces, as the full anæsthetic effects of the chloroform are preserved while the loss of consciousness is by no means complete. Still better results have lately been obtained by substituting a subcutaneous injection of a few centigrammes of muriate of narceine for the morphia. The hypodermic solution is best made as follows: 0.3 gm. of muriate of narceine are mixed with 20 gm. of distilled water in a flint or test tube; the latter is placed in a water motor and heated until the salt is dissolved.

Translations.

Spermatogenesis in Vertebrate Animals.

(Concluded from page 652.)

By Prof. Balbiani.

Lecture delivered at the College of France, and translated from the "Journal de Micrographie," of June and July, 1877, for the Cincinnati Medical News, by Thomas. C. Minor, M. D., Cincinnati.

III.—Plagiostomes.

A large number of authors have devoted themselves to the investigation of the testicles of boneless fish (*Plagiostomes*): Cuvier, Muller, Stannius, (1840), Lallemand, (1840–41), Fogg and Pappenheim, (1849), Bruck, Waldeyer, and particularly Semper, to whom we owe the most important work.

We may compare the structure of the testicle in plagiostomes to that of a bunch of grapes, formed of large spherical vesicles, placed at the extremities of more or less long and sinuous canals. Fogg and Pappenheim believe that the cellular stroma in which the testicular body is deposited, which is called the *epigonal body*, forms at certain points rounded masses of cellules, which surrounded by a membrane, hollowed at their center, become the vesicular matter of the spermatozoa. This is an error; the *epigonal body* is a stroma, formed of small granular cellules, traversed by connective links; this is the connective embryonic tissue, which constitutes also the part subjacent to the gland.

Semper opened a new way to the study of the male genital organs, but he has caught only a glimpse of the facts, which Balbiani has completely cleared up.

In the embryo, we see appear in the peritoneal cavity, two longitudinal fascia, which are thickenings of the mesentery, extending to a great length. They are the outlines of the male or female generative organ. The clyindrical epithelium of the peritoneal cavity covers these fascia, but it is very thick at their surface, which forms a fold in the peritoneum, or *genital fold*. It is only the anterior part of these bands which is developed in the ovary or testicle, all the posterior part constitutes the *epigonal* stroma of the adult. In certain species, (*achan-*

tias,) this stroma is absorbed early; in others, it persists and even takes on considerable development, (*mustelus*.)

Soon the cellules which compose the epithelium of the genital fold are thickened at the internal face of this fold, diminishing and taking the ordinary aspect of peritoneal cells, while at the external portion they are increased, taking on a voluminous nucleus, and forming the germinative epithelium, of which certain cellules become very large. These are the *primordial ovules.* Even up to this point the genital gland is essentially neutral, and the phenomena is exactly the same among males and among females.

During this time the subjacent connective stroma is developed from the deeper portion towards the surface, disuniting the epithelial layer in which the large cells are absorbed, and dipping into the stroma. enveloped by a layer of non-modified epithelial cells. But this is not detached; it is, as in the primordial ovules of the mammifera, by groups, that these large cells are buried in the stroma. These groups form the male cells of Pfluger, which are segmented to the same degree that they are buried in *ampulla*, which represent the follicles (Semper). (These tubes of Pfluger are, as in the female, surrounded by a layer of epithelial cells derived from its surfaces, which constitute the *ampulla* after their disintegration, like the Graafean *follicles* in females).

In the testicles of the adult we still find the proligerous band, like a white ribbon, extended longitudinally and parallel to the axis of the testicle. The bulk of the testicle is formed by ampulla which have taken their origin in this proligerous band (*progerminative*, of Semper). To the measure that the tubes are formed and disassociated the ampulla becomes free, burying itself farther and farther from the fascia towards the opposite surface of the gland. Thus, to the degree that they are drawn from the band, the ampulla are older and form species of concentric zones. This work continues during the life of the animal. At the surface opposite to the band we only find empty ampulla in a state of reabsorption.

Semper admits that the epithelial cell, at first very small, and forming a single layer around the ovule, takes on a longer nucleus, which elongates and becomes vesicular. These nuclei are imbedded towards the centre of the ampulla, and multiply by budding or division. They

are arranged in more or less regular rows. Each cellule, in the main, is filled with nuclei arising from the proliferation of the primitive nucleus. These masses of nuclei, the *spermato blasts* of Semper, form the head of the spermatozoa, and are surrounded by a mass of protoplasm derived from the mother cell, a protoplasm which divides itself, tapers, and forms the tail.

Thus, in the ovary, it is the central cellule of the follicle, the ovule, which is developed into an egg, while the epithelial cells are atrophied; in the testicle, it is the central ovule of the ampulla which is absorbed, and the peripheral epithelial cells are developed in order to form the spermatic elements. Semper thought that this central cell served for the nutrition of the others. In the meanwhile, he has not given a clearer idea of the facts which precede the formation of the spermatozoa. He says, besides, that this central cell simply disappears in order to leave the space free to the spermatozoa, as we see certain cavities (vascular, for example) formed by the reabsorption of the central cells of a full cellular bud.

He remarks, besides, that at the side of each of the spermatic fasciculi formed by the mass of spermatozoa, there is a rounded refracting body, of which he explains neither the nature nor origin, and which he calls the *problematical body*.

As soon as the fasciculi are detached, the spermatozoa fall into the cavity of the ampulla. The latter pushes out a sort of branch or cul-de-sac, which goes to join the tubes of the *rete testis* with which it inosculates, and the spermatozoa pass from the ampulla into the deferent canals. In fact, the tubes of the *rete testis* penetrate the deeper portions of the testicle; they are lined with cylindrical epithelium, but on leaving the point where they inosculate with the stylus of the ampulla, which forms a segmentary canal, the wall of the tube is lined with a vibratile epithelium (all the segmentary organs of the embryo have a vibratile epithelium).

A long time before Semper, Balbiani (1870), in studying sections of the hardened testicles of water dogs, recognized all the elements described by Semper, but interpreted them differently.

The follicle or ampulla is formed by a central cell, or ovule, which becomes an egg in the female, and by epithelial cells which surround it. It is the last which give

rise to the spermatozoa. The ampulla there always contains a female element, the central cell, and a male element, the peripheral epithelium.

At one time, the female element, the central cell, gives out buds from all its surface, buds which are divided into new cells, daughters of the first, and which, advancing towards the periphery of the follicle, are soon placed in contact with the epithelial cells. From this contact follows a sort of fecundation or conjugation, for, from this moment, there is produced in the male element an abundant proliferation. The nuclei and the nucleoli of the epithelial cells disappear in order to reappear multiplied very soon. Each male cell gives out a stolon towards the centre of the follicle, a stolon covered by daughter cells, attached to the stolon by a peduncle. The germ of the spermatozoid does not reside in the nucleus; but we see formed in the protoplasm a condensation of protoplasmatic material, which is the first outline of the head. This is the *cephalic globule*, which is very soon elongated and forms a sort of cylinder, to the formation of which the nucleus is always indifferent. The globule increases in size, and pushes a filament towards the centre of the follicle. The spermatozoid is thus formed in the pedunculated cell of which its caudal filament traverses the wall.

But, shortly afterwards, the pedunculated daughter cells re-enter the stolon like the fingers of a glove enter the hand; and at this stage there exists upon the stolon as many orifices as there are of pedunculated daughter cells; it is by each of these orifices that each daughter cell enters, and from each of them protrudes the tail of a spermatozoid. But, at the same time, the stolon is retracted into the body of the mother cell; and there remains upon the walls of the latter a single orifice into which the stolon enters, and from the opening of which project, in fibres, all the tails of the spermatozoa, the heads of which remain engaged in the mother cell. We can observe these cells becoming *center-form*, and see the orifice by which the tail fibres of the engaged spermatozoa pass, or, better, the same orifice becoming freely opened by the liberation of the spermatozoid.

But, during this time, the central cellule, the female ovule, and its daughters are retracted also, and have, by degrees, disappeared; from thence, the nucleus and nucleolus of the central cell, that is to say, the vesicle and the

germinative spot of the ovule, then the cellular buds which, from this cell, are advanced towards the epithelial cells in order to enter into conjugation with them. But the nuclei of these ovular cells which are conjugated do not disappear, while all the central mass is absorbed, these nuclei undergo a particular fatty retrograde metamorphosis; they assume a refractive aspect, which permits them to be very easily recognized and found in connection with the spermatic fibres. These are the *problematical* bodies of Semper.

The spermatozoa are not then, properly speaking, an anatomical element, free vibratible cells. The designation, spermatic animalcules, can be given them with a certain amount of reason, since they owe their origin to a sort of fecundation or conjugation between a male element and a female element. It is also the same in the egg.

The female element of the testicle, the central cell of the follicle, may sometimes develop and become a true ovule. This often happens among batrachians, where we may find in a follicle a large ovule with spermatic filaments placed upon the walls of the ampulla, and leaving epithelial cells which line the latter. This happens very frequently in the frog (*Bufo cinereus*). Thus the hermaphrodism among certain animals is very easiiy explained; in really hermaphrodite species, as in gasterpode mollusks, there is a simultaneous development of ovules and spermatozoa.

As to the *plagiostomes*, with which we have been occupied, we have nothing more to add, only as a detail to that which we have already said. The ampulla or follicles, which have given rise to the spermotozoa, give out at a point of their surface a sort of stylus or branch, the segmentary canal, which goes in front of the tube of the *rete testis*, and opens into the latter: The spermatozoa are then disengaged from their respective cells, and pass into the deferent canals, during which the ampulla thus emptied are destroyed by degrees, and are pushed farther and farther from the germinative fascia by the follicles of new formation.

(To be continued).

Selections.

A Contribntion to the Study of the Nature and Consequences of Malarial Poisoning.

By William A. Hammond, M. D., Professor of Diseases of the Mind and Nervous System, in the Medical Department of the University of New York, etc.

In a paper on "Pigmentary Deposits in the Brain Resulting from Malarial Poisoning," published in the first volume of the Transactions of the American Neurological Association, 1875, I called attention to the subject of brain pigmentation and abnormal mental phenomena as results of intermittent fever and other malarial diseases, and for the first time pointed out the fact that in cases of affections of the nervous system having a miasmatic origin and in which presumably there are cerebral pigmentary deposits; like formations can often be detected in the retinæ by ophthalmoscopic examination. Since then other instances similar to those cited in the memoir in question have come under my observation, but the following case, presenting, as it does, some additional fea tures of interest, appears to be worthy of special mention.

C. H., a young man twenty-three years of age, was attacked for the first time in his life on May 25th of the present year with intermittent fever of the tertian type. He resided in First avenue, near 14th street, a location not remarkable for salubrity. He was treated with large and repeated doses of sulphate of quinine, with the effect of arresting the paroxysms of ague in a few days. But about the 5th of June he was seized with a series of violent choreic movements of the head which occurred daily at the same time (from 9 to 10 o'clock in the morning), and during which the head was pulled forward, backward, and from one side to the other with great force and frequency for fifteen or twenty minutes.

During the continuance of the paroxysms the mind remained clear, and there was no distortion of face or change of complexion. Quinine failed to exercise the east influence over this condition; on the contrary, the paroxysms became stronger and occurred in the afternoon as well as in the morning. The patient's mind also be-

came involved. He refused to talk and would sit hour after hour in a listless way with his hands on his knees and his eyes fixed on vacancy, occasionally bursting into tears without apparent cause.

On the 10th of June he was brought to me by his mother, an intelligent German woman, and from her I learned the foregoing particulars.

At this time he was anæmic in appearance, the pupils largely dilated; he refused to talk or to answer any questions unless spoken to in a loud and authoritative tone, and then, after some delay, would begin an answer which was left uncompleted. On my telling him to put out his tongue he obeyed, but kept it out till I told him to put it in again. Desiring to examine the blood with the microscope, I pricked the end of his finger with a needle and left the room, being absent about ten minutes, on my return he was still standing with his finger extended in exactly the same position in which I had left him. I took hold of his arm and raising it high above his head left it there. After twenty-two minutes it began to fall slowly to his side. It will be perceived, therefore, that there was a certain degree of cataleptoid tendency present.

The microscopical examination of the blood showed the existence of numerous pigment-holding cells, but no free pigment.

The spleen was considerably but not excessively enlarged. I introduced into it through the anterior wall of the abdomen the point of the hypodermic syringe, figured in the paper before referred to, and drew off about half a drachm of splenic blood. This was of of a dark, almost black color; on microscopical examination it was found to contain red corpuscles in diminished number, white corpuscles in augmented quantity and of greater than normal size, and numerous pigment-holding cells and masses of free pigment. This latter was generally in granules, sub-rotund in shape, and averaging about the $\frac{1}{2800}$th of an inch in diameter. Occasionally these granules were aggregated in groups of irregular form, and again in figures distinctly stellate in shape. On adding, under the microscope, a drop of a strong solution of caustic potash the pigment immediately began to lose color, first becoming a pale brown and finally a yellow hue. It may be stated that old pigment does not readily undergo this change.

On ophthalmoscopic examination the arteries of the

retinæ were found to be of somewhat diminished size, and the choroid was paler than is usual in health. Along the course of the arteries in both eyes were masses of pigment, mainly, however, at the outer periphery of the retinæ.

And there were, also, what I had not previously witnessed in similar cases, several recent retinal hemorrhages in each eye. These were uniformly from the larger portion of the arterial trunk, and consequently near the disc, though they in no case encroached upon this structure.

I treated this patient with large doses (twenty drops, three times a day, after meals) of the liquor of the chlorophosphide of arsenic, and at the end of ten days, when he again visited me, there was a manifest improvement in all the symptoms. The choreic movements had entirely ceased, the mind was decidedly more active, and the nutrition and general appearance much better. The splenic blood, however, still contained pigment, though in diminished quantity. There was none to be found in the blood taken from the end of the finger, the back or the thigh.

The ophthalmoscope showed a marked change in the fundus of each eye. The masses of pigment were diminished in size, though unchanged in color. The retinal extravasations had entirely disappeared, leaving in their situations small, white spots about the third or fourth of a line in diameter.

I may state that throughout the whole course of the disease the patient had never complained of any disturbance of vision. His visual powers, as tested with Galezowski's test-types and chromatic scales, were perfectly normal.

I directed the treatment to be continued, and, in addition, prescribed the dialysed iron in fifteen drop doses, three times a day. I did not see this patient again until the third of September. He was then well except that his mind was a little sluggish. The splenic blood contained very little pigment, and the ophthalmoscopic appearances were normal except that the white spots, previously mentioned, persisted unchanged.

The interesting points about this case are:

1st. The existence of a large amount of pigment in the splenic blood while it was absent from the general circu-

lation, though certainly present in the retinæ and probably in the cortical substance of the brain. This is to be explained, probably, by the hypothesis that at first the liver, through which organ the splenic blood passes, failed to retain the whole of the pigment, though eventually doing so.

2d. The occurrence of retinal hemorrhages in connection with malarial poisoning.

At first I thought that this was the first case of the kind that had been observed, but upon thorough research I ascertained that a similar instance had been noticed by Galezowski as occurring in the practice of his and my distinguished friend, Dr. Noel Gueneau de Mussy. The case in question was that of a youth who was suddenly attacked with intense headache and high fever. A few days subsequently he complained of impaired vision, and on ophthalmoscopical examination, double-optic neuritis and nmerous retinal hemorrhages were discovered. Intermittent fever of the tertian type was now developed. Quinia was administered in repeated doses of about eight grains each, with the effect of curing the fever and the neuro-retinitis, and causing the disappearance of the retinal extravasations,

And while my patient was under my care, soon after his first visit, which was June 19th, there was published in the London *Medical Times and Gazette*, of June 23d, an interesting paper on "Retinal Hemorrhages and Melanæmia as Symptoms of Ague," by Dr. Stephen MacKenzie, Assistant Physician to the London Hospital, etc.

MacKenzie, after detailing the case upon which his memoir is based, enters at length into the discussion of the subject, during which he makes frequent reference to my paper published in the Neurological Association's Transactions. He also reports the results of his examinations of six patients suffering from malarial diseases in the Greenwich Hospital, in two of whom he discovered retinal hemorrhages. Dr. MacKenzie calls attention to the facts that these hemorrhages disappear quickly under treatment, and that they leave behind them small, round, bright spots, which he describes as resembling "pin holes pricked in a piece of paper held up against the light." I should rather compare them to little bits of white mother of pearl.

In the subsequent issue of the *Medical Times and Ga-*

zette the continuation of Dr. MacKenzie's memoir is given, and this portion is devoted entirely to the consideration of melanæmia and its relations to malarial poisoning. In my own paper, already referred to, I have incidentally, to some extent, discussed this division of the subject. There are one or two points, however, quite recently brought forward, which are so interesting that a brief *resume* of them and a reference to some researches of my own will probably not be considered out of place.

As is well known, two principal theories exist relative to the nature of the malarial poison. According to one, and by far the older, the toxic agent is gaseous, and results from the decomposition of organic (mainly vegetable) matter; the other ascribes it to the vegetable organisms, algæ, and spores of fungi, which being detached from the soil by the atmosphere are brought into contact with the body and absorbed into the system through the respiratory and alimentary passages. The one theory is as old as Lancisi (1695), the other was, so far as I am aware, first promulgated by the late Dr. Mitchell, in 1849, though his claims are generally overlooked, as they are by Dr. MacKenzie.

Several years ago I wrote as follows in relation to this question. As the work has been long out of print, I beg to be excused for making the quotation:

"In regard to the first-named hypothesis (the gaseous) the facts that malarious diseases occur where there is no vegetable decomposition, as on the banks of the Tagus, opposite Lisbon, the sandy plains of New Mexico, where there is no rain and scarcely any vegetation, and that in many localities where there are vegetable decomposition, heat, and moisture, there are no malarious affections, are difficult, if not impossible, of being reconciled with the theory in question. Many other arguments might be adduced against it; so that, while it is true that malaria is generally produced in greatest abundance where heat and moisture are combined with vegetable decomposition, no necessary relation between them and this morbific agent has been established.

"The theory proposed by Dr. Mitchell appears to me, on many accounts, more plausible; both from what was previously known relative to the poisonous character of certain fungi, and from the facts and arguments he has brought forward in its support. In addition, I have my-

self noticed several circumstances which appear to favor it; not the least of which is the occurrence of immense quantities of the spores of fungi in the atmosphere of malarious localities.

"If the apparatus figured on page 174 (an aspirator by the use of which the air was caused to pass through a small opening and impinge against a piece of glass moistened with glycerine) be set in action in a region where malaria is evolved, it will be found that, on submitting the glass plate to microscopical examination, numerous spores of fungi have been deposited, among them the bassidiaspores of hymenomycetous and gasteromycetous fungi will generally be found predominant.

"I have already referred to the instance of an intermittent fever from, so far as I could determine, inspecting a large lot of damaged hay; and I have frequently suffered from headache with febrile action after rumaging among old books which had become musty from long disuse."

In 1866, Dr. J. H. Salisbury, in continuation of his remarks relative to the algæic character of the contagion of measles, claims to have discovered the "ague plant," and subsequently other observers have endeavored to establish the distinct causative relation between certain algæ and malaria.

But none of these researches have possessed the thoroughness and directness of those recently undertaken by Lanzi and Terrigi, and published under their joint authorship, though the observations now to be mentioned were made by the first-named of these physicians:

"After extensive examinations of the microscopic fauna and flora of the marshes in the Roman Campagna and the Pontine marshes, Lanzi was led to the discovery of a peculiar alteration which the algæ undergo in these localities. Dark granules are found imbedded in the endochrome or chlorophyll of the algæ cells, sometimes single, sometimes in clumps. They become more abundant as the algæ die, and finally they so completely fill the algæ cells that the latter no longer appear green, but black; while simultaneously with these changes the algæ become stinking and decomposed. This process (which has been closely followed by Lanzi in his aquaria) takes place on a large scale each year in the Roman Campagna. The swamps, which form in the winter, are covered in the spring with a very abundant growth of algæ. In the

summer, when the water dries, large surfaces of the country are covered with a continuous layer of decaying algæ. In the autumn, also, they die and decay on the surface of any water that remains, and the soil of these shallow marshes is transformed into a layer of decomposing slime in which the microscope reveals the presence of the above-mentioned dark granules. These dark granules arising from the decomposition of algæ and other plants are, according to Lanzi, of the nature of a ferment. They are found abundantly disseminated in the dust of the Roman Campagna, or can be readily developed out of it by cultivation. According to Lanzi, these growths are identical with the pigmented *Sphero-bacteria*, of Cohn, and the *Bacteridium Brunneum*, of Schroetter, and by cultivation he obtained growths of *Monilia penicillata*, of Freis. The pigment granules which are found in the liver and spleen of persons suffering from malarial cachexia are identical in their properties with these ferment-producing granules developed out of decomposing vegetables; and Lanzi strongly maintains the identity of the so-called *malarial melanine* of pathologists with the granules resulting from decaying plants. He has been able by cultivation to grow zooglea-like vegetation from the pigment of melanæmic livers.

"Terrigi found abundance of 'malanæia melanin' in the liver and spleen of Guinea pigs which were made to breathe marsh air containing the organisms described."

We see, therefore, that Lanzi and Terrigi regard the pigment granules found in the blood, the liver and the spleen of persons suffering from malarial poisoning, not as altered hæmatine, but as vegetable organisms introduced from without, and causing not only the pigmentation of these and other organs, but as the etiological agent in producing ague and other miasmatic disorders. Their theory, therefore, is a modification, so far as the latter part, as stated above, is concerned, of that promulgated by the late Dr. Mitchell, and to which Salisbury, myself and others have furnished more confirmatory facts. It is to be hoped that the subject will be taken up anew in this country, and studied with the light which Lanzi and Terrigi's researches appear to have thrown upon it. I may here state, that having had recent occasion to evacuate, in one of my patients, two hepatic abscesses, I found in the pus of each numerous masses of pigment

granules. The patient, a gentlement from West Virginia, had suffered from repeated attacks of malarial diseases. At some future time I may give the particulars of his and other like cases to the readers of the *St. Louis Clinical Record.*

Symptomatic Phenomena Accompanying Organic Lesions at the Mitral Orifice.

By Austin Flint, M. D.

Gentlemen:—I shall next ask your attention to the symptomatic events and diagnostic phenomena connected with organic lesions at the mitral and the aortic orifice. You will please recollect that I have divided valvular lesions into three groups:

1. Those which involve more or less change in the valves or orifices, giving rise to obstruction to the current of blood.
2. Those which involve incompetency of the valves and permit regurgitation of blood; and
3. Lesions which involve neither obstruction nor regurgitation, and which, therefore, are innocuous.

In a practical point of view, the latter is a most important group. The signs which we have considered enable us to recognize valvular lesions; enable us to localize them, to determine whether they involve obstruction or regurgitation, or, as is not unfrequently the case, both obstruction and regurgitation. But there are lesions giving rise to signs that do not involve either obstruction or regurgitation, and for the time being, at least, are innocuous. Practically, it is important that you should take cognizance of this latter fact, and not consider, because cardiac murmurs are heard, that we have, necessarily, lesions which are of very grave importance.

There is another clinical fact which is important, namely, the valvular lesions do not produce of themselves grave results. As a general statement, this is true. The valvular lesions do not, as a rule, produce symptomatic events until they have led to enlargement of the heart which stands in immediate relation with symptomatic phenomena. Further, the valvular lesions do not produce grave symptomatic phenomena until, in the enlargement of the heart, the dilatation predominates over the hyper-

trophy. The hypertrophy is a conservative provision, and as long as it predominates the organ is enabled to perform its function without grave difficulties; but when the dilatation predominates, the heart becomes weakened, and then it is that we have grave results as the consequence of valvular lesions.

Let us first direct our attention to lesions found at the mitral orifice.

In this specimen, as you will see, the mitral orifice is very much narrowed; so much so as to admit but little more than the end of one finger. The heart is also very much enlarged, but the enlargement does not affect the left ventricle at all; its walls are not thickened, and its cavity is not increased in size. But when we look at the right side of the heart, there is evidently an enlargement of the right ventricle; its walls are somewhat thickened, and its cavity is dilated. We have, then, in this specimen, hypertrophy with dilatation affecting the right side of the heart, and the dilatation predominates. I know nothing of the history of the case, but it is fair to presume that more or less of the symptoms to be spoken of to-day were exemplified during the life of the patient. Let us consider what those symptoms are. In the first place, I will point to a general connection existing between the symptoms and the lesion. In almost all cases of valvular lesion of the heart the progress of the lesion is slow. I hardly need say to you that in a very great majority of cases they have their origin in an endocarditis, complicating acute, articular rheumatism. Now, for example, the patient has acute articular rheumatism, endocardial inflammation is developed, the patient apparently makes a complete recovery, and many years may elapse before any symptoms referable to the heart are developed. This is true as a general statement. What is the first symptom which attracts the patient's attention? Is it pain? No. As a rule, if we except angina pectoris, we may say that organic lesions of the heart are unattended by pain. This statement is quite opposed to the popular idea, so that we are often consulted by patients who are suffering from pain in the neighborhood of the heart, and naturally enough suppose that it indicates disease of the heart. In general the pain in those cases is due to pleurodynic or intercostal neuralgia.

The patient may have been conscious of more or less

increased force in the heart's action, or palpitation, but very likely it has not attracted his special attention, even when he first comes to the physician. The heart's action has been increased in force for some time before consulting the physician, but this increase has taken place so gradually, so imperceptibly, that the patient has become accustomed to it, as a rule, and does not regard it as worthy of mention. Again, a patient with organic disease of the heart may have palpitation as a functional disorder, irrespective of that disease. It is not uncommon for persons to suffer from functional disorder of the heart in consequence of anæmia, etc., and under those circumstances the functional disorder may occur and have no connection at all with the organic lesion. This is an important practical point to be decided in individual cases, but I will not stop to take the question into consideration at the present time. We do not, then, find that the patients have pain, or complain of disturbed action of the heart as the first symptom of organic disease, but, as a rule, that which leads them first to consult a physician is *want of breath upon exertion.*

In general, the symptoms proceeding from each kind of valvular lesion at the mitral orifice are the same. There is no special or material difference.

The want of breath upon exertion is the symptom of which the patients commonly first complain, and when they are asked how long they have suffered from shortness of breath, it will be found that perhaps they have noticed it for weeks or months. It has finally increased to such an extent that they are unable to take any active exercise without panting, and that fact leads them to think there is something wrong, and they consult a physician. We then examine the chest, and find evidence of enlargement of the heart with mitral lesion, obstructive or regurgitant, or both. Assuming that the disease is progressing, that the dilatation ceases to hold a direct proportion to the compensating hypertrophy, the want of breath upon exertion grows more and more troublesome, and finally there is constant suffering from that symptom, even while the patient remains at rest. The reason why these patients suffer from want of breath is, that the valvular lesions prevent the free passage of blood through the lungs; in other words, gives rise to pulmonary congestion, and in proportion as the blood flows with insufficient force

it is insufficiently oxygenated, and hence the feeling of want of breath.

Following out this effect, there comes a time when the patient suffers from more or less dyspnœa constantly, is unable to lie down at night, and he suffers from great fatigue incident to the fact of being unable to assume the recumbent posture.

When the dyspnœa has reached this degree, there is one symptom which is almost uniformly present, and that is general cardiac dropsy. When we have general dropsy it proceeds usually from lesions either of the heart or kidneys; hence the division, cardiac and renal dropsy. General dropsy may occur from other causes, but, in general, when present, it depends either upon cardiac or renal disease, or upon both combined.

The cardiac dropsy makes its first appearance in the form of œdema of the lower extremities, and extends more or less rapidly, until finally the œdema becomes generalized, and we have anasarca. When this is the case there is usually more or less fluid in the serous cavities of the body.

There is a certain degree of relation between the quantity of dropsy existing in the serous cavities and that present in the subcutaneous areolar tissue; and, although it cannot be expressed mathematically, yet, in a practical point of view, the relation is certainly very clear. If we find that there is dropsy of the peritoneum, much out of proportion to the subcutaneous œdema or anasarca, we have a right to infer that we have to deal with something more than cardiac and renal disease, and probably it will be found that disease of the liver is also present.

Fortunately, there is not so much dropsical effusion into the pericardium, in connection with general dropsy, as into the peritoneal or pleural cavities. Now, this general dropsy, other things being equal, we may consider as evidence of weakening of the heart from dilatation of its cavities. To what does that stand in an important relation? It has a direct and important relation to dilatation of the right side of the heart. We have seen, and this specimen illustrates that fact, that the first effect of mitral obstructive or regurgitant lesion is to produce dilatation of the left auricle; then follows pulmonary congestion, and as the result of that congestion the right side of the heart becomes over-filled; the consequence is an undue

action is excited; hypertrophy follows to compensate, and goes on until it reaches its limit, and then dilatation takes place and increases until it becomes predominant. When this point has been reached, there has been more or less dilatation of the right auricle, and then we have an obstruction to the return blood throughout the system.

The dropsy then stands in immediate relation to weakening and dilatation of the right side of the heart, and, still further, to dilatation of the right auricle.

There is another cause for dyspnœa, in these cases, other than mere pulmonary congestion. Pulmonary œdema is liable to occur. It rarely occurs in connection with mitral obstruction and regurgitation as a sudden development, but to a greater or less extent it is liable to occur as a result of the constant pulmonary congestion, and when it does occur diminishes the pulmonary capacity and increases the dyspnœa. Auscultation will enable you to determine how much pulmonary œdema is present. The pulmonary congestion leads to more or less cough and expectoration as the result of a low grade of bronchitis. In a considerable portion of cases blood will be found mixed with the sputa, or the patient may have a pure hæmoptysis. It is rarely the case, however, that the bronchial hemorrhage is profuse in this class of cases.

These are the important pulmonary symptoms which stand in direct relation to mitral lesions.

Now with regard to the *pulse* as representing the condition of the heart. It is evident, when mitral obstruction is present, that the quantity of blood in the left ventricle is considerably under that present when the orifice is healthy; hence, it is easy to understand that the effect upon the pulse would be to make it small and feeble, because of the diminished amount of blood thrown forward into the arteries. Suppose we have mitral regurgitation, then a portion of the blood is thrown back into the auricle which should be sent forward into the aorta, and the effect upon the circulation is the same as with mitral obstruction. We therefore have a weak pulse as representative of mitral lesion, whether that lesion be obstructive or regurgitant. If hypertrophy predominates over dilatation, a very striking contrast is afforded by comparison of the cardiac impulse, when the ear is placed over the præcordium, with the impulse given to the finger when placed on the radial artery. The impulse of the

heart will be found stronger than in health, while the pulse is much weaker. With regard to the rhythm of the pulse, we find a marked difference in different cases. In some cases, with considerable organic lesion, we have a regular cardiac action and regular pulse. In other cases, however, we find the action of the heart to be irregular, both in kind and in degree, and such irregularities are not easy to explain.

In cases in which dilatation has taken place, and there is very considerable obstruction or regurgition, or both, we may have these irregularities, and it is important that that fact should be borne in mind. If the heart be weak as regards the force of successive systoles, we may not find a pulse which represents every systole; that is to say, the systolic contraction of the left venticle is sometimes strong enough to produce a pulse at the wrist, and sometimes not. If, therefore, we are guided by the pulse alone, without auscultating the heart, we may be led into error with regard to the frequency of the heart's contraction. Not unfrequently we find a pulse numbering no more than 80 or 90 to the minute, when by auscultating the heart, and counting the systoles, it will be found that they number as high ar 100, or 110, or 120, to the minute. In cases, therefore, in which the heart is found weak, it is important to correct the pulse found at the wrist by results obtained by auscultating the heart. When we have dilatation of the right side of the heart, producing dropsy, there is also, as a matter of course, general venous congestion, which is especially apparent in the veins of the neck; they are increased in size, and usually are turgescent. Under these circumstances we may have venous pulsation, more frequently observed upon the right than upon the left side of the neck, and such pulsation may be present with or without turgescence of the veins. It is rarely the case that pulsation of the jugular vein can be appreciated by the touch, but it is very apparent to the eye. It is also easy to determine whether the visible pulsation is venous or arterial; for, if we make slight pressure upon the vein just above the clavicle, sufficient to obstruct the flow of blood through the veins into the heart, if the pulsation is venous it will be suspended. It may be the vein lies so near the artery that you will imagine the visible pulsation is due to pulsation in the carotid; but the amount of pressure required to obliterate it is not

nearly so much as would be required to cut off the arterial circulation.

We may go still farther, and these are nice points in physical examination.

This pulsation may be produced by the contraction of the right ventricle causing a current of blood to be sent back into the right auricle, and transmitting an impulse which becomes visible in the veins of the neck. There is one way in which venous pulsation is produced, and it is called the ventricular venous pulsation. How are you to determine whether it is produced in that manner? First fix the eye on the pulsating vein, then place the finger on the carotid artery of the opposite side, and then observe whether the two pulsations are synchronous. If synchronous, it is evidence that we have venous pulsation, produced by contraction of the right ventricle.

Again, the venous pulsation may be produced by contraction of the right auricle. How can you show that such is the case? It is done by the same method; that is, look at the pulsating vein, place the finger upon the carotid on the opposite side, and now, if the venous pulsation is auricular, it will *precede* the pulsation of the artery, because the contraction of the auricle precedes the contraction of the ventricle.

Again, we may have two venous pulsations for one arterial, and it is easy to determine that also. It is done by fixing the eye upon the pulsating vein and the finger upon the artery as before, and then determining by count whether we have for each carotid pulse a double venous pulsation. These are the prominent events, or sympathetic phenomena, which stand in relation to disease of the heart, involving mitral obstructive lesion or mitral regurgitant, or both.

As regards the other anatomical systems of the body, the excretory, the digestive, etc., these may not be very materially affected; at all events, they do not give symptomatic phenomena which are distinctive of this event.

At our next lecture we shall pass to the consideration of symptomatic phenomena following lesions at the aortic orifice; obstruction or regurgitation, or both, and from these pass on to the study of enlargement of the heart.—*Medical Record.*

Consideration of Several Remedies.

CARDIAC STIMULANTS.

At the very head of this class stands digitalis. In organic disease of the heart (no longer considered a rare disease of childhood), the prognosis as to compensatory relief under its use is certainly more favorable than in the same lesions in adult life. In mitral regurgitancy the bruit is increased by digitalis, but the cough and ashmatic dyspnœa are relieved. The infusion of digitalis often affords great relief in various forms of dropsical effusions; yet it is, properly speaking, no more a diuretic than tannic acid, which, as we know, also increases the flow of urine in certain instances. A failure or paucity of the urine occurring while digitalis is being administered should be regarded as a sign of danger. I have only once noticed the blueness of the sclerotica described by some writers as a toxical symptom. I have not found it necessary to give large doses in cardiac diseases of children, but it has been necessary to continue it for a long time. I gave it in one case for a year with but a few short intervals; in three others it was given consecutively for over six months, resulting in relief of every symptom except the bruit itself. I have at no time observed any of the cumulative action of the drug, and it very rarely disagreed with the stomach. Cinnamon water appears to be a good corrigent for the nausea which digitalis may produce.

Belladonna stimulates the neart indirectly by its paralytic effect upon the inhibitory nervé centers. Irregularity of the heart's action not unfrequently has its origin in the brain rather than in the heart. Severe and prolonged mental application may thus often disturb the rythmical contraction of this organ by a stimulation of the inhibitory centers. As a stimulant to the capillary circulation, belladonna is exactly suited to a relaxed condition of the skin, as well as to the more complex diseases of the spinal cord. Children tolerate the drug beyond the age ratio followed for other medicines.

CARDIAC SEDATIVES.

The indication for this class of medicines in the inflammatory and febrile conditions of childhohd is more positive than in adult practice. Such conditions are often of

a sthenic type, and most of the febrile conditions are of an irritative character; the heart's action is greatly accelerated, and its force is also increased at the expense of the muscular power. In these conditions the most valuable agent is aconite, and the most reliable preparation is the tincture of the root. Its action as a local sedative also, when applied to any part of the mucous tract, is a great advantage where the stomach is irritable and medicines cannot be retained. The smallness of the dose—one-fourth of a drop being sufficient for an infant—and its tastelessness when properly diluted, are points of great importance. Veratrum viride cannot, I think, be compared with it in value in childhood; although it is considered to be a safer agent, the nausea and purging induced render it unfit for many cases.

SPINAL SEDATIVES—CONIUM.

As an agent affecting the circulation in the brain and spinal cord, and as a paralyzant of voluntary muscles by its effect upon the afferent spinal nerves, conium has not yet attained the high place in general practice which it deserves. Perhaps the two circumstances which have led to this are, first, that in diseases requiring the use of conium, as in spinal irritation, congestion, meningitis, etc., the medicine is seldom employed in sufficient dose; second, there is very little ot the drug which is reliable. Conium should be administered as digitalis; *i. e.*, for its effects alone, without reference to quantity. Dr. Harley has declared that conium is to the corpora striata, the smaller nerve centers, and the entire motor tract, "what opium is to the brain." Since I have been less careful in regard to the dose, I have had better results from the use of conium. Some years ago I made extensive use of extract of conium in cerebro-spinal meningitis, and with marked benefit. The only preparation which is at all reliable is the fluid extract.

SALICYLIC ACID.

The effect of this acid in controlling acute rheumatism is truly wonderful. Much of its value no doubt depends upon the sedation exerted by it upon the circulation, as a consequence of which pain is lesssened and temperature reduced. I have found the pain of migraine and other neuralgias yield very promptly to its use. As a local application to the nasal and pharyngeal mücous membrane in

diphtheria and other diseases it is unexcelled. Its caustic nature demands care in its use, especially in young children, and the following formula makes an excellent and safe mode for its administration:

℞. Acidi salicylic . . . . ʒjss.
Ammoniæ citratis . . . ʒss ad ʒj.
Syrupi cinnamoni . . . ℥jss.
Aquæ cinnamoni . . . ℥ss.

M. Ft. solut. Teaspoonful every second hour for a child of five years suffering with rheumatism.

The putrescent character of the stools in children suffering with summer diarrheas is at once changed by salicylic acid, and a corresponding improvement in the condition of the little patient noticed. Its power over living germs renders it at once invaluable when contagion is feared. Prof. Abelin, of Stockholm, says that "in children, doses large enough to bring down temperature acted as a poison," and cites a case in which twelve grains caused death. In such doses it seemed to be a corrosive poison. In smaller quantities it lowers temperature without exerting any beneficial effect upon the course of the disease.

JABORANDI.

Most of the experiments have been performed with an infusion of the drug in substance, and in this way when given in five or ten grain doses it has uniformly produced its characteristic effect. Now that we have its active or alkaloid principle (pilocarpin), it is probable that we may eliminate some of the hitherto ascribed properties as being common to the piperacea. Its action is upon the glandular system. Therefore, as a therapeutic agent, it must be limited to the restoration of the function of the skin, salivary glands, and the mammæ, or to establish vicarious action by them.

Its use in acute febrile excitement or during the eruptive stages of the exanthemata is opposed to the principles of sound therapeutics, and I am not surprised that disappointment has attended its administration where the vitality of the skin is impaired, or where perspiration and transpiration are checked by reason of high temperature. By the use of stimulating diuretics, we do harm in certain diseases of the kidneys, no less than when we employ stimulating diaphoretics to restore the function of

the skin which is already suppressed by over-stimulation. The indication is to lessen the force of the heart and bring down the temperature. If this be done by proper means, the perspiratory glands will resume their functions without the aid of jaborandi. The same applies to the salivary glands during the stage of eruptive excitement in scarlatina, and a failure of this drug under the conditions should not weigh against its usefulness.

Pilocarpin, in one-twelfth of a grain, equals five and a half of the drug in effect. It is an oily substance like conia, but not possessed of odor. It has little effect upon the heart and upon temperature, and the sense of debility after its use in health must be no argument against its use when the system is oppressed by dropsy (ascites or anasarca), for this same sense of weakness will be turned to strength by the use of this agent. By far the most numerous cases of dropsy in childhood are post-scarlatinal, and the testimony of those who have used jaborandi is in its favor. In certain dropsical effusions it offers the best and most prompt relief. The propriety of its use in cardiac dropsy, except for temporary relief, may well be doubted. It is best in dropsy depending upon disease of kidney, as vicarious action is the only hope of even temporary relief. In cardiac dropsy it must not be made to supplant digitalis.

Ergot produces vaso-motor spasm, and consequently increased arterial tension, through its action upon the nerve centers within the cranium. This fact, if it be conceded, gives to the drug a therapeutic importance, in treatment of diseases affecting the circulation, unequaled by any other medicine, unless it be determined that ustilago is more powerful. I have made extensive use of ergot based upon the above theory, and so far with the best results. The importance of ergot as a therapeutic agent in congestions of the brain and spinal cord in childhood, in catarrhal and mucous diseases, etc., renders it especially proper to include it in the medicines of childhood.

CHLORAL HYDRATE.

It most not be forgotten that the symptoms relieved by chloral hydrate and potassium bromide are dependent upon hyperæmia of the nerve centers in the brain or cord, and that sudden exhaustion is attendant upon many diseases of infants; *e. g.* cholera, diarrhea, etc., in which convul-

sions usually terminate life. Chloral and bromide would but increase the trouble, and stimulants alone are indicated. The apyretic action of chloral hydrate renders the mixture additionally valuable in high temperature when convulsions threaten.

The local use of hydrate chloral is scarcely less valuable. I now depend upon its prompt and pleasant action in diphtheria; to abort abscesses, and to prevent the formation of pus in sinuses, as a gargle in stomatitis and in scorbutic gums of childhood, it is unexcelled, as well as in the angina of eruptive fevers. Chloral hydrate and bromide of potassium are contra-indicated in chorea. The rapid anæmia in these cases is of itself sufficient reason to predict what practice confirms. In hooping-cough a combination of the bromides, as in the formula of Dr. Brown-Sequard, will, if pushed, always give satisfaction. As a general thing in such cases the doses are far too small, and the interval too long.

Military Service in the Tnrkish Army.

In reply to several correspondents, Dr. Elmslie sends the following letter to the *London Lancet*, in answer to those who desire to learn something of the position, etc., of English medical officers in the Turkish army. As I had a commission as surgeon in the Turkish army during the Turco-Servian war, I will state what the position then was, and which I have reason to believe still is.

1. He receives £25 from his Excellency Mushurus Pasha (the Turkish Ambassador, 1, Bryanstone-square, London) to defray traveling expenses to Constantinople. When he arrives there he presents himself to the Seraskierat (War Office), in Stamboul, and receives a month of six weeks' pay in advance.

2. The pay ranges from £12 to £20 a month, and each surgeon receives also rations and forage, which he is allowed to draw once a month in kind or money.

3. The field for practical work is immense, and above all, the English surgeon is in *sole* and *full* charge of his regiment, ambulance, or hospital, etc., and is not in any way hampered by the native doctors.

4. Each medical officer is provided with a *pharmicien*, and also with a horse and two or three orderlies.

5. The climate, on the whole, is magnificent (though

very hot in summer, and very cold in winter), and the scenery is grand in the extreme.

5. The best route is to leave London any Thursday evening for Paris and Marseilles, sailing from the latter place by one of the steamers of the Messageries Maritime Compagnie at five o'clock on Saturday afternoon, arriving at Naples on Monday, Athens on Wednesday, and Constantinople on Friday.

No one should take out more luggage than is absolutely necessary, but simply two suits of clothes (one thin, and the other thick), as he must wear Turkish uniform when out there, which is purchased wonderfully cheaply in the bazaars of Stamboul—drawers, jerseys, flannel shirts, paper collars, warm socks, two pairs of stout boots, a strong pint metal flask, a Whistler's British bulldog revolver and holster, a good strong knife, a Macintosh sheet, a few leather straps, and some soap. A large bottle of chloroform in a wooden case, a set of amputating instruments, with a good sound tourniquet, and a pair of bullet forceps and probe. Some good quinine is a *sine qua non*, as intermittent fever is very prevalent, especially under the mountains and near the banks of the Danube, Moritza, and Morava rivers, where miasmata abound, camps being pitched without the slightest reference to hygienic principles. Astringents (especially opiates or pills of nitrate of silver with opium, or sulphate of copper with opium) are invaluable, as obstinate diarrhea or even disentery attack the stranger at first. He need not take out brandy, as Mr. Nunn, at the English Stores, Constantinople, keeps the best; but a few tins of Du Barry's Revalenta Arabica and Liebig's Extract of Meat will be worth their weight in gold, should he be taken ill in camp, and, from personal experience, I don't think anyone should go into the Turkish camp without these things in the medical chest, as the food up the country is simply execrable.

He need not expect to make much money in Turkey; but if he cares for journalism, he will find, as I myself found (being the special correspondent of a leading London newspaper), that it is both pleasant, instructive, and lucrative.

It is *imperatively* necessary to obtain a passport from the Foreign Office (price 2s.) and to forward it to the Turkish Embassy to be stamped with the Ottoman *visa*.

Microscopy.

Contribution to the Theory of the Microscope.

By DR. E. ABBEE.

Translated for the MEDICAL NEWS, from the "Journal de Micrographie," of Dr. J. Pelletan, by Miss Marie Eugenie Villatte.

SECTION I.—*The Construction of the Microscope on theoretical basis.*

I.—Allusions have often been made in our manuals of microscopy to the fact that the construction of the microscope, and its varied progress towards perfection, were solely the work of empiric practice. Every once in a while this question has arisen: Why the theory that can give us a satisfactory explanation of the mode of operation of the microscope, *when constructed*, cannot, at the same time, serve us as a basis for its construction? Why can not we construct this class of optical instruments by means of calculations founded on theoretical formulas, deduced, as has been successfully done since the time of Frauenhofer, for the telescope, and more recently for the optical department of photography?

The continuance of the empiric practice is commonly attributed to the very difficult technicalities, often deemed *impossibilities*, in arriving at the necessary precision in the prescribed measurements of the different lenses that constitute the object-glass of the microscope. At first this seems plausible enough, for the extremely small dimensions of objects requiring an object glass of great power, can well explain it, and cause the difficulty of taking measures of the required exactness almost insurmountable. Nevertheless this objection is not applicable; on the contrary, after considering the technical and scientific methods, well understood by experienced opticians, and after making a critical comparison of the different kinds of difficulties which serve as a conducting thread and key in theoretical discussions of the conditions which influence those proceedings, I have come to this conclusion, actually confirmed by its success, that the lenses and systems of lenses of which each part has prescribed dimensions, can be as well executed, and with more ease, than by any other process employed to obtain the realization of the same conditions with equally satisfactory re-

sults; and, consequently it suffices that the calculation for each separate element ot optical effect be correct, to insure, with a skillful execution, the true result of a given theoretical construction.

In the laboratory of C. Zeiss, at Jena, the construction of the object glasses, from those of the lowest to those of the highest power, are regulated by exact calculations (based upon a careful analysis of the material composing each part) of each curve, of the thickness of each glass, and of the degrees of each space, thus avoiding all guess-work and slips of the thumb. The optical elements of each piece of glass used are previously calculated by trial prisms, and by means of the spectroscope, so as to compensate for all accidental variations of matter by a corresponding modification of its construction. Each component lens is cut as exactly as possible with prescribed dimensions, and mounted with care. Only in object glasses of great power is there left a variable element (the distance between the lenses) so as to be able to repair the small and unavoidable deviations of the most careful manipulation. Thus it seems to me that a theory, firmly established and combined with rational technical processes, utilizing all the modes afforded by optical science, can be successfully substituted for the empiric practice, even in the construction of the microscope.

II.—In the course of study that has led me to these conclusions, it has become evident to me that the theory of the microscope used, up to the present time, is defective in several important points. First, in the manner in which the condition of a perfect projection of the image, and the causes of its imperfect projection, discordant conditions, have been discussed. This has been proved by facts, such as present themselves in the microscope. The circumstance of the idea that an angular aperture, which is unknown in any other instrument, being called in question here, displaces the accepted ideas on "aberration," even for the examination of a microscope (donne) already constructed, to say nothing of attempting to determine in advance the effect of combinations not yet executed.

To obtain the necessary data for the last experiment, we must establish a theoretical analysis of the action of a system of lenses constructed with a large angular aperture, on a mathemathical basis far larger and with more

precise details than has as yet been done. In doing this it becomes manifest that the correct execution of a combination of lenses for the microscrope, such as would prove satisfactory for all exigencies, depends upon a number of unexpected conditions, each independent of the others, and whose particular estimation would be impossible if one did not introduce in the theory of the microscope varied questions which do not actually form a part of it.

A like theory, more fully developed in the direction indicated, was altogether a mathematical work, containing problems, which (solved), would aid to establish principles of dioptrics. Experience was consulted in this work only so far as it was necessary to know the exact form from which each separate source of error, as indicated by the theory, could be recognized in the microscope, when constructed, and also to estimate exactly the importance of each in the practical use of the microscope. Besides, a new desideratum was developed in our theoretical knowledge, which could be answered only by new experiments. The nature of this desideratum is indicated by the uncertain views, often contradictory, which are admitted on the angle of aperture, and on what is called the "definitive power," and the "resolvent power." To destroy all uncertainty, and obtain a true knowledge of the influence which here comes to play, was a condition, *sine qua non*, of success, if one attempted to develope the above theory, because the effect which is supposed to be produced by the angular aperture depends entirely on the direction and solution of the problem. Each portion of the construction will differ entirely, according to its calculation for an object glass of 40°, 90° or 150° of aperture. But one was altogether in doubt of the effect to be expected, so long as one could not render an exact account of the real influence of the two factors "definition" and "resolution."

III.—The result of the investigations that were independently undertaken for the purpose of solving these questions has brought to light the fact that an important point in the optical functions of the microscope has been neglected up to the present time; for in all previous interpretations and explanations it has been accepted as an evident proposition that the formation of the image, in each particular case, takes place in the microscope ac-

cording to the same dioptrical laws of the telescope, or on the surface of reception in a darkened chamber. From this it was tacitly deduced that each optical function of the microscope was determined, as in those last instruments, by the relations of luminous, refracted rays, which could be geometrically traced. A rigorous examination of the experiments on which is founded the traditional distinction of the powers "definitive" and "reflective" has shown that this proposition, although apparently confirmed by facts, is inadmissible. It is true, in certain definite cases, susceptible of verification; but for the majority of cases, particularly those objects for which the microscope is supposed to prove its highest qualities of execution, it appears that the production of the microscopic images is intimately connected with a particular optical phenomenon, until now neglected, a phenomenon that has its site in the *object* itself, depends on its nature, although the measure of its effect depends, also, in a direct manner, on the construction of the *object glass.* The results derived from these facts have a direct influence on the most important problems of microscopy; they show the existence of an entirely specific function of angular aperture, and by connection produce clearer and truer ideas of those two factors called "definitive" and "resolvent" powers, which constitute the optical capacity of the microscope, and on whose correct perception can be carefully determined each of the conditions on which the perfection of the instrument depends. From this can also be derived practical rules for the construction of the microscope on rational principles, as well as relative indications of efficacious methods to test it when constructed. Again, these new acquisitions have led, by subsequent experiments, to deductions on the general nature of microscopic vision. It has thus become possible to fix the visible limit, beyond which nothing must be expected for the construction of the microscope. But furthermore, to bring to light a fact of general application, viz., that an object, being entirely free from errors in itself, and, in consequence, supposed to represent, in all cases, the veritable constitution of an object (a proposition on which all interpretations of microscopic vision has been, till now, based as indisputable), *cannot be considered* as such for a whole class of objects and observations.

The object of this theoretical and experimental research

of the principal points of each was above pointed out, and is entirely practical. Its aim was mainly to discover a true guide for determining a formula relative to the calculation of a system of lenses, but it has advanced to a complete theory of the microscope, which treats of each department of microscopic doctrine, and even adds to it several new ones. In its intimate connection with the technical construction of the microscope this theory has rendered a two-fold service. In the first instance, the rigorous exigencies of the practical part of the work demanded such investigations as no one would undertake, unless he wished to write a treatise on microscopy. On the other hand, the actual construction of the microscope on principles deduced from the theory has applied the most sensitive tests to which like theoretical considerations can be submitted.

The particulars of this research were published in full in volume viii of the *Journal of Medicine and Natural Sciences*, at Jena, but the final summing up is here presented, in hopes that it will be accepted by more than one microscopic practice. Here the same order and methods of research are followed as in the more lengthy communication, particularly the first discussion of all matters relating to purely dioptric conditions, and next in the examination of the new factors above mentioned, and of the part they take in the total optical execution of the microscope. It must be understood, however, that the following explanation is not a repetition in detail of works published elsewhere, and does not at all assume to be a complete development and foundation of facts to be demonstrated.

(To be continued).

MICROSCOPICAL WORK.—We have been accustomed from time to time to notice such microscopic apparatus as our attention has been called to—giving a brief description of it, stating its merits, etc., as it has appeared to us. It has occurred to us that by so doing we would be rendering a service to both the makers of apparatus and the individual who purchases. The former has thus a ready means of bringing to the attention of the microscopists the quality of his work, and any improvement he may have made, while the latter becomes acquainted with it, and is

made to have a feeling of confidence in the value of the articles he has heard of, before purchasing, that he otherwise would not have—he is relieved of uncertainty, which very often is not pleasant, especially if his means are limited, and he is not able to assume any risks.

We wish it to be understood that when we describe an article made by any particular maker, and commend its excellence, we do not propose to attach to it pre-eminence over any similar product made by some other maker. While it can be depended upon as possessing the merits we mention, it should not be inferred that others of the same kind do not possess excellent qualities—it may be in some cases superior.

We have recently had the pleasure of examining a four-tenths objective, with two fronts, made by Mr. Wm. Wales, of Fort Lee, New Jersey, whose advertisement appears in our advertising form. One of the fronts is of 95° angle of aperture, and the other is of 115°. Our attention has been given more particularly to the lens working with the latter front, although we have examined it with the other front. With the front of 115° it resolves easily p. angulatum with central light, shows readily the lines upon grammatophora subtilissima, n. sigmoida, p. fasciola, etc. The g. subtilissima on the slide in our possession are very much more difficult as test objects than the frustules which are generally found upon Moller's probe platte. In fact, the lines are quite as fine as are the longitudinal lines of s. gemma on that slide, and we have heretofore regarded the showing of them plainly as good work for a first class sixth. The podura scale is resolved very beautifully with a C eye-piece, and the drawtube drawn out to its full extent—the markings showing as "exclamation points," as pictured in the engraving of them by Mr. Richard Beck. The sharp definition, which is preserved under the greatest degree of amplification, demonstrates very conclusively the excellent qualities of the objective.

Such an objective demonstrates the value of large angle of aperture, providing the corrections are perfect. In this glass, with deep eye-piecing, and the drawtube extended, we have the full benefit of the amplification of a tenth, with the advantage of a focal length of a low power. The high angle and superior corrections bestow a resolving power that is not possessed by any eighth or tenth

that is made to work through any thickness of glass covering.

Mr. Zentmayer has recently added to his stands one which he terms the "histological stand." It is made entirely of brass. The base and uprights are one piece, of great rigidity, to which the bell-metal bar is attached by a joint, permitting of any angle of inclination; perpendicular and horizontal positions are indicated by stops. The coarse adjustment is accomplished by a sliding tube; the tube is $5\frac{1}{2}$ inches long, capable of elongation to the standard length. The fine adjustment, very delicate, is of the same style as the one of the American Centennial Stand. The sub-stage and plane and concave mirrors swing in the same manner as in that instrument, having the object at its centre, even when swung over the stage, for illuminating opaque objects, thus making the bull's eye condenser unnecessary. The removable sub-stage carries the diaphragms, which can be shifted up close to the object.

The instrument is provided with a good eye-piece, and two excellent objectives—one inch and a quarter inch, the latter of 75° angle of aperture, and resolving p. angulatum. We described these objectives in a previous issue. The price is only $50—very cheap for so excellent an instrument, quite capable of doing all the work of a medical student, physician, or amateur.

Mr. Gundlach makes an objective of $\frac{3}{10}$ths in. focus. Although sounding oddly, as we have never before heard of a lens thus rated, we think it will be found a very convenient glass, and in ordinary work would probably be used more than any other, in consequence of its amplifying power being suitable for a great deal of microscopic work. Its amplification is between that of a $\frac{4}{10}$th and a quarter. The angle of aperture is 75°, resolving p. angulatum and tests of that kind with ease.

FILARIA SANGUINIS HOMINIS.—Dr. T. Lewis, in the *Lancet*, of September 29th, states, that for the last five years he had availed himself of every opportunity of minutely examining the tissues of persons who have either died or been operated upon, in whose blood the embryo filaria sanguinis hominis had been observed to find the parent worm. But all efforts were unsuccessful until August

7th, when an opportunity occurred. A young Bengalee was operated upon for hydrocele of the spermatic cord. The fluid which escaped, the diseased tissues, and some varicose enlargements around the tissues surrounding the cord, were carefully collected in separate vessels. The blood, and the chyloserous exudations from the diseased parts contained numerous embryo filariæ, but none could be found in the three or four ounces of the straw-colored fluid of the hydrocele, nor were there any attached to the inner surface of the sac. This was the fourth pathological specimen of this character in which he had searched for the mother entozoon, the embryoes being present in abundance; and it seemed, after spending several hours in close examination, this search, too, would prove negative. At last, however, while teasing a blood clot under a dissecting microscope, his eye was arrested by white, thread-like objects, in a state of great activity. These, on being transferred for examination under a higher power, were found to be specimens of two mature filariæ. One of these contained ova, with embryoes identical in appearance with the free embryoes in the blood, in the exudation, and in the tissues. The other specimen was thinner, and had been so far injured by the needles used in teasing the clot as to have lost both terminal ends. What remained was about half an inch in length; it was of firmer consistence, and manifested a stronger tendency to maintain a coiled condition. It measured transversely $\frac{1}{180}''$, and the contained alimentary tube $\frac{1}{630}''$.

The parasite is of a white color; the cuticle is smooth, and devoid of transverse markings, except such as are induced by the contraction of the subjacent muscular walls.

MOLECULAR MAGNITUDES.—In *Popular Science Monthly*, October, Mr. L. R. Curtiss defines an "atom" to be an *indivisible particle* of a simple substance, and a "molecule" to be an indivisible particle of a compound body, or the aggregation of two or more atoms. Thus, a crystal of common salt, he says, may be pulverized until one of its fragments is barely discernible to the highest range of microscopic power, and still this fragment will retain all the characteristics of salt. This same microscopic portion is susceptible of a further subdivision by solution in water, when the spectroscope will detect its presence in

the still minuter quantity of the one hundred millionth part of a grain. Any further subdivision must be by the process of abstraction, until we reach the mental conception of a portion so minute as to consist of an atom of sodium united by chemical affinity to an atom of chlorine. This is now a molecule of common salt.

Mr. Curtiss says that Sir William Thompson concludes, from the data given by Clausius, that the diameter of the gaseous molecule is somewhere between the $\frac{1}{250000000}$th and the $\frac{1}{500000000}$th of an inch, and as the density of known liquids and solids is from 500 to 16000 times that of common air, he concludes that the distance from centre to centre of contiguous molecules in solids is less than the $\frac{1}{250000000}$th, and greater than the $\frac{1}{500000000}$th of an inch; and he illustrates by supposing "a drop of water to be magnified up to the size of the earth, each molecule to be amplified in the same proportion, these mollecules will then be less in size than cricket balls, but larger than small lead shot."

NUMERATION OF THE WHITE BLOOD CORPUSCLES IN DIPHTHERIA.—MM. Bouchut and Dubrisay have examined the blood of twenty-four children suffering from diphtheria, of whom eleven cases are classed as diphtheritic pharyngitis, and thirteen as croup. Hayem's numerator was employed, and in all ninety-three examinations were made. These examinations demonstrate the occurrence of an increase in the number of white globules, and of a diminution in the number of red globules, in diphtheria. The average number of white globules was 26,660; in forty-two of the examinations the number was greater than this, and in one it even reached 105,000. The num- of globules was only eleven times within the normal limits; viz., 5,000 to 10,000. The average number of red globules was 4,461,543. The augmentation in the number of white globules was greater in proportion to the severity of the diphtheria. In one case, which may be considered as typical, the number varied between 28,237 and 65,887 during the course of the disease; it had reduced to 15,687 on the eve of the patient's discharge, and on the next day fell to 4,706.—*Gaz. Med. de Paris.*

Gleanings.

[From Maryland Medical Journal.]

Radical Treatment of Facial Neuralgia by Aconitine.—(*Paris Medical; London Medical Record*). W. Gubler, the learned Professor of Therapeutics of the Parisian University says: "I do not know a neuralgia of the fifth pair, even a tic-douloureux, which has resisted aconitine." He recommends the aconitine of Hottab & Liegeois as excellent, and that of Dugurmel as very powerful. Granules and pilules are not reliable even when made from a good article, for one may be discouraged by the nullity of their effect for a certain time, and thus may give too large a dose; the nullity of effect, in fact, resulting from non-absorption. He advises a solution of the nitrate of aconitine to be employed, in which half a milligramme ($\frac{1}{140}$ grain) of the nitrate is contained in a dose. This is equivalent to a quarter of a miligramme ($\frac{1}{280}$ grain) of aconitine. The dose may be pushed much further, in some very severe cases of long standing it having been carried up to six milligrammes ($\frac{1}{60}$ grain). It offers no danger if prudently managed. It should not be employed in person with heart disease.

Temperature in Febrile Disease.—Dr. Hans Wegscheider (Virchow's *Archiv.* February, 1877), writing on the distribution of temperature in febrile diseases, says:

1. There is no constant relation between the internal temperature, as measured in the axilla, with the general temperature of the surface. We saw the first rise, while the temperature between the toes fell, and *vice versa*.
2. Two completely symmetrical parts of the skin, as between the toes, show no proportionate course in their temperature; not only do they differ by not rising or falling to the same level, but one may rise while the other remains stationary or falls, and *vice versa*.
3. There is greater variation in the temperature-curves in the same part of the skin, in the same person in fever than in health; but in fever there is a striking fall of temperature, notably lower than in the healthy state. However, in those people who suffer from cold feet, the temperature is often as low, or somewhat lower.

It follows from the last, that there is a gteater difference in fever between the temperature of the axilla and that

of the periphery than any changes of local temperature which may occur in health.

From all the foregoing, he concludes that the vessels of the skin in fever are in an abnormally irritable condition.

He did not find any noteworthy differences between the temperature of the two axilla in unilateral affections of the the thoracic organs. At any rate, in pleurisy there was no constant relations. In one case, in which both pleuræ were affected, the side with the great effusion had the lower temperture. His observations on pneumonia were too few to give a definite result, but the differences he observed were not so great as Landrieux has asserted. *The London Medical Record.*

A Daring Therapeutist.—At a late meeting of the Massachusetts Dental Society, Dr. Waters, of Salem, stated that bicarbonate of soda, such as used for cooking purposes, or any other alkali in neutral form, would afford instantaneous cessation of pain from the severest burns or scalds, and would cure such injuries in a few hours. Dipping a sponge into boiling water, the Doctor squeezed it over his right wrist, producing a severe scald around his arm, and some two inches in width. Then, despite the suffering occasioned, he applied the scalding water to his wrist for half a minute. Bicarbonate of soda was at once dusted over the surface, a wet cloth applied, and the pain, the experimenter stated, was almost instantly deadened. Although the wound was of a nature to be open and painful for a considerable time, on the day following the single application of the soda the less injured portion was practically healed, only a slight discoloration of the flesh being perceptible. The severer wound, in a few days, with no other treatment than a wet cloth kept over it, showed every sign of rapid healing.

The Importance of Cincho-Quinine as a Remedy.—The Supervising General of the Marine Hospital Service has issued a circular letter to the medical officers of that branch of the Treasury, in which he calls their attention to the extraordinary increase in the market price of sulphate of quinia, and at the same time alludes to the success attending the employment of the other alkaloids of the bark.

In the year 1866 the Madras Government appointed a

Medical Commission to test the respective efficacy in the treatment of fevers of quinine, quinidine, cinchonine, cinchonidine, and the remedial value of these four alkaloids, as deduced from their experiments, is shown by the following statement:

Quinidine,	ratio of failure	per	1000	cases,	6
Cinchonidine,	"	"	"	"	10
Quinine,	"	"	"	"	7
Cinchonine,	"	"	"	"	23

Cincho-quinine contains all these alkaloids, and the combination has proved more efficacious than any one alone; and the price of this article being less than one half the present price of sulphate of quinine, the physicians of this country are substituting it for the sulphate; and the medical officers of the Government service should give this subject due consideration in preparing their requisitions for medical supplies.—*Washington, D. C., Daily Nation, August 8, 1877.*

Chloral Hydrate.—In two extremely important and interesting communications, says the *British Medical Journal*, which Dr. Oscar Liebreich, Professor of Materia Medica in the University of Berlin, has published recently, he calls attention to the extreme importance of medical men's ascertaining that the chloral furnished to their patients is none other than the pure crystal. Dr. Liebreich records effects observed by him in Berlin and elsewhere, which indicate that cake chloral is apt to contain impurities of the most irritating and dangerous character. Not only do these impurities injure the hypnotic effect of chloral as mere adulterations, but they are of an irritating character, and lessen directly the desired effect of the chloral in producing calmness and sleep. Dr. Liebreich pointed this out when first he discovered and investigated the therapeutic effects of chloral and introduced it into medicine. It appears, however, that manufacturers, pharmaceutists, and physicians have by no means been mindful of the cautions which he then gave, and a large amount of the chloral in use is of the dangerous kind indicated; it is indeed asserted that of the chloral sold in solution in this country 80 to 90 per cent. is made with other than the purest materials; and unfortunately it appears that there is no known test by which the purity of the chloral when once in solution can be adequately as-

certained. We publish an interesting account from a correspondent in Berlin, who visited the manufactory of the great chemical makers, Schering, in which this subject is not inopportunely referred to; and as the matter is one of considerable therapeutic interest, we shall take a further oportunity of referring in detail to the experience and statements of Dr. Oscar Liebreich, of Berlin, as to the subject of the purity of this most valuable medicine. It is obvious that in chloral hydrate, we have been endowed with an agent of inestimable therapeutic value, but it is clearly one which is liable to abuse, and not without its dangers; and if, indeed, it should prove, as Dr. Liebreich believes, that many if not most of the accidents which have occurred are due to the impure and most dangerous character of the article most rife in commerce, it becomes highly important that measures be taken to insure absolute purity in this most potent drug.

Simple Dilatation of the Stomach in Chronic Dyspepsia.—At a recent meeting of the Societe de Biologie, M. Leven presented the stomach of a man, who died while under his care, presenting all the symptoms of a cancer of this organ. For a long time he had suffered at intervals from black vomit, had lost flesh, and shown all the sign of gastric cancer, or certainly ulcer. M. Leven, having recognized that he was simply troubled with a chronic dyspepsia of long standing, with great dilatation of the stomach, treated the case by means of the stomach-pump. He removed a very large quantity of fluid, and directly afterwards the patient, feeling his pains no longer, begged for something to eat. Thus he was able for some time to take nourishment without vomiting. Unhappily the cachectic state was already so far advanced that this treatment, while ameliorating his condition, did not restore him to health. He died, and at the autopsy it was found that the stomach was free from any trace of cancer or ulceration. On the posterior surface great dilatation of the blood vessels was found, as occurs in chronic dyspepsia with simple dilatation. M. Leven states that a large number of patients are thought to have gastric carcinoma when it is simply dilatation in connection with dyspepsia. He has a number of cases to support this statement, and he thinks the stomach pump may, by its appropriate use, save life.—*Gaz. de Hopitaux*, *May 8*, *1877*.

Book Notices.

PRINCIPLES OF MENTAL PHYSIOLOGY, WITH THEIR APPLICATION TO THE TRAINING AND DISCIPLINING OF THE MIND, AND THE STUDY OF ITS MORBID CONDITIONS. By WILLIAM CARPENTER, M. D., LL. D., F. R. S., F. L. S., F. G. S. 12 mo. pp. 737. 1877

We regard this work of Dr. Carpenter as one of the most learned works in the English language. We remember how that more than twenty years ago, when a student of medicine, we were entranced, almost, as it were, by his most interesting exposition of the nervous system printed in his "Human Physiology," but now omitted, since with it and the necessary account of new discoveries in other departments of physiology, the volume was becoming too large. There was unfolded to us a new philosophy of the mind, of which we were before entirely ignorant. At our literary *alma mater* we had studied mental operations only from a metaphysical standpoint, and, being ignorant of physioloyy, knew not how else to consider them. But introduced to the study of the mind by the inductive method of reasoning through Dr. Carpenter—beginning at the lowest or first manifestations as perceived in those animals possessed of the simplest form of nervous system, and proceeding upward to the more and more complex until the highest is reached in man—our whole system of philosophy of the mind underwent a revolution, and we became conscious of being in possession of one securely resting upon a scientific basis, and not upon changeable, uncertain, metaphysical reasoning. But in thus giving assent to a materialistic exposition of mental phenomena we held on as firmly as ever to those simple theological dogmas taught us by our mother. We never could see why our belief in them should be in the slightest weakened. Their validity does not depend upon whether the mind is a force dependent upon certain conditions for its existence, or a spiritual entity dwelling in each of us and acting through the brain or body. Man can have an immortal soul in the one case as well as in the other. There is no revelation to the effect that the mind, as made up of memory, reasoning power, judgment, etc., is the soul, while there is overwhelming evidence that these faculties are dependent upon organiza-

tion, and not only that they are, but also that the emotional functions, the feelings, are too.

But we are wandering from the work of Dr. Carpenter. Those of our readers who delight in the study of the nervous system, and to trace in it the source of mental operations, will find here a treasury of knowledge. The first chapter treats of the general relations between mind and body, and is a very interesting chapter. We then come to the second chapter, in which is described the nervous system and its functions—apparatus of animal life, apparatus of organic life, the relations of the two. Then the different forms and modes of action of nervous apparatus is taken up, and there is described the simplest type of the nervous system as it is found in the lowest forms of animal life upward until we come to man. In other chapters there is discussed the emotions, the will, attention, sensation, perception, ideo-motor action, memory, etc.

Dr. Carpenter, although he finds in the nervous system the source of the common operations of the mind, yet he does not subscribe to the doctrines of the distinguished biologist, Huxley, who maintains that animals are automata, and that man is only a more complicated and variously endowed automaton. He says, "I find nothing in the results of more recent researches to shake the conviction at which I arrived nearly forty years ago, of the existence of a fundamental distinction, not only between the rational actions of sentient beings guided by experience, and the automatic movements of creatures whose whole life is obviously but the working of a mechanism,—but also between those actions (common to man and intelligent brutes) which are determined by a preponderating attraction towards an object present to the consciousness, and those (peculiar, as I believe, to man) in which there is, at one stage or another, that distinct purposive intervention of the self-conscious ego which we designate will, whereby the direction of the activity is modified."

Practical Hints on the Selection and Use of the Microscope. Intended for beginners. By John Phin, Ed. of the "American Journal of Microscopy." Second edition; fully illustrated and greatly enlarged. 12 mo. pp. 181.

The success with which this little work has met is

evidenced in the fact of a second edition being called for in only a few months after the publication of the first. Before the issuing of this one there were many excellent works upon microscopy, as those of Carpenter, Beale, Hogg, etc., but none fulfilling entirely the wants of a beginner—concise, elementary in its character, and of small cost. Hence the directions that are given are of the simplest kind, and all theoretical explanations have been avoided.

As has been stated by the author, thousands of microscopes throughout the country are at the present day lying idle, simply because their owners do not know how to use them. If properly employed they might be made to afford an incalculable amount of instruction and amusement; but, as it is, they are a drag upon the popularization of science, because they convey the idea that the microscope is a difficult instrument to use. The careful study of this little work, however, will dispel any erroneous notions of the kind, and will tend to awaken an interest in this most delightful of instruments.

An Index of Diseases, and their Treatment. By Thomas Hawkes Tanner, M. D., F. L. S. Second edition. Revised by W. H. Broadbent, M. D., F. R. C. P., etc. Philadelphia: Lindsay & Blakiston. Cincinnati: R. Clarke & Co. 8vo. pp. 432. 1877.

As the author states, the object of this work is intended to facilitate the daily work of the busy practitioner; and especially to help him in successfully managing such cases of diseases as do not yield to treatment so readily as might be desired. While not designed as a "Practice of Medicine," or intended to take the place of any such work, yet it gives a brief description of the prominent signs of the various diseases by which they may be recognized, and a synopsis of the treatment. We do not know of a work that would probably render as much assistance as it in making a diagnosis in any case a physician might be called to, bringing out, as it does, so prominently the characteristic symptoms of each disease.

An "Appendix of Formulæ," of 150 pages or more, is added, in which the practitioner will find many most useful formulæ for prescribing. Here, too, is described the various health resorts, the kind of climate peculiar to

each, springs of mineral waters and analysis of the waters, what diseases are benefited by them, and much other most valuable information.

This work will be found a most pre-eminently useful one, containing, as it does, so much practical information. The busy practitioner possessing it would daily have occasion to consult it.

HOSPITALS: THEIR HISTORY, ORGANIZATION AND CONSTRUCTION. Boylston Prize Essay of Harvard University for 1876. By W. GILL WYLIE, M. D. 8vo. pp. 240. New York: D. Appleton & Co. Cincinnati: R. Clarke & Co.

Hospitals are known to have existed 226 years B. C. How much longer we do not know—probably much longer. An edict of Buddhists, enacted at the time mentioned, and which is still extant, directs that hospitals shall be erected "well provided with instruments and medicines, consisting of mineral and vegetable drugs, with roots and fruits."

Notwithstanding the very long time those institutions have been in existence, perfection in their construction is very far from having been reached. Very many of those of the present day are much better adapted to insure a fatal termination of a disease than affording means for its relief. In not a few instances they have brought about the conditions to establish an epidemic. The author, in describing Bellevue Hospital five years ago, states that he has seen patients die from septic diseases contracted in the wards after the slightest surgical operations or injuries. From 40 to 60 per cent. of all amputations of limbs proved fatal; and he saw a strong, healthy man die from pyæmia following an amputation of a great-toe. In this building the wards were only separated from each other by the intervening partitions inclosing the water-closets and bath rooms, which were without ventilation, except as they opened into the wards. In some instances there were only six windows to wards of 20 beds.

There is scarcely any matter in this work that is not of interest to the general practitioner as well as to those who are directly interested in the construction of hospitals. In writing it, pretty much all the principles that govern in hygiene had necessarily to be elucidated, and

we have here consequently an epitome of such that is of the utmost value. If physicians would study well such a work as this, there would not be so many badly constructed dwellings in which the health of the occupants are so exposed to morbid influences, but more attention would be given to heat, light, ventilation, water supply, cultivation of grounds, sewerage, out buildings, and a hundred other things of the highest importance, but to which, in very many instances, not the slightest attention seems to be given. We cordially recommend the work to all.

THE RELIGIOUS FEELING, A STUDY FOR FAITH. BY NEWMAN SMYTH. New York: Scribner, Armstrong & Co. Cincinnati: Robert Clarke & Co. 12 mo.

This is an attempt to show that man's spiritual nature, as evidenced by his distinction between right and wrong, and sense of moral dependence on God, has just as true an existence as his intellectual or physical nature. It is not, as prominent physicists would assure us, a growth in itself, however much its forms and manifestations may vary by culture or change of environment. Man neither created his religious feeling out of nothing in his own soul, nor reached it first by reflection. He has always been possessed by it since he came to himself in self-conscious life. His best thoughts came as surprises of light, not as his own creations, but visions and revelation of the truth, which no man calls his own, for it is before all men. The feeling of absolute dependence is the earliest, most general form of the religious feeling. Always around the soul's horizon line is God. The mistake made by Darwin, Spencer, and others of their school, whom Mr. Smyth reviews at length, is over-looking the fact that to trace the natural history of religious ideas and their progress is not in itself an account of the impulse from which the whole movement of ideas was first originated and is carried forward. The feeling is found before it is incorporated in ideas.

"The civilized traveler may bring to some tribes for the first time the language of worship, but the religious feeling is in them before the coming of the missionary, and, as he teaches, it begins to fill out those words with meaning. Could religion ever be taught to beings ab-

solutely destitute of the feeling for it, any more than a dog can be taught to worship, or a monkey to pray? The fact that among all men the ideas of religion are communicable thoughts would indicate the existence, alike in the civilized and the barbarian, in the missionary and in the savage, of that common human feeling of dependence which is the source of all religions. * * * Herbert Spencer, in his Sociology, has not accounted therefor—for the feeling which lead men to worship—by his induction of facts to prove that ancestor worship is the earliest form of religion. The feeling and the form which it assumes; the impulse of the soul, and the successive conceptions thrown out by it, are to be carefully distinguished. The one is no more to be taken for the other than the heat of a fire is to be confounded with the rings of smoke it may send forth. Mr. Spencer's method is mainly one of *quantitative* analysis, where differences in *quality* are the very points to be determined."

We can not follow the author through his entire argument, but can cordially recommend the reader to do so, for it is both brief and clear. It neither maintains nor controverts the evolutionary theory of physical existence, but shows that whatever a man may think of the laws of physical creation, he must still bow in reverence before God and His commands as spoken to the soul, unless he is willfully deaf and blind. The book will form a help to many perplexed minds, as it epitomizes very satisfactorily some of the best results of conservative German thought.

Editorial.

FAITH IN SPIRITUAL AND DIVINE REALITIES. — In our "Book Notices" we notice a little book just published on the "Religious Feeling." If our printer was not in such a great hurry for copy, while we have the work in hand, we would like to have something to say in regard to some of the subjects discussed in it; but, under the circumstances, we must defer it to another time, if that ever comes, contenting ourselves for the present to merely drawing attention to a remark of the author in the preface; viz., "Faith in spiritual and divine realities may,

in some of its older forms, be passing into Herbert Spencer's favorite family of extinct beliefs, but it certainly has had a marvellously persistent life in human history, and in new forms may prove itself able to survive vigorously even in the midst of those theories of evolution which constitute, undoubtedly, the general environment of thought in our generation." Although he does not consider that what he has written is able to bring about a complete adjustment of faith to its new surroundings, yet he cherishes the belief that they do contain a restatement of the evidence of things not seen somewhat more in harmony with the present condition of our knowledge.

As knowledge has increased, dogmas of the past have had "to go under;" as it continues to increase still more of them will meet the same fate; and so, continually, will there have to be going on a readjustment of our beliefs in order to be in harmony with the discoveries of science. But while this is so, faith in spiritual and divine realities will never pass into the extinct beliefs. It may become modified in form and stripped of superstitions, but its essence will always continue. As we stated in an address published in the April number of the MEDICAL NEWS: "Men are apt to believe that their interpretations of the divine will are correct, and if, therefore, these be assailed, they take it for granted that the divine will is assailed. They do not seem to understand that if a positive law of Nature is discovered which appears to be in conflict with the statements of revelation, the law must stand, and we must seek a better understanding of revelation." In other words, our faith—our dogma—must be revised, readjusted, to harmonize with the new condition of knowledge.

It is not reasonable to suppose that during the ignorance of the past men would form very high and enlightened views in regard to spiritual matters, but that their notions would be on a par with their ignorance, to be corrected as their knowledge increased. Revelation has never professed to let them see into the next world except as through a glass darkly, leaving them to form more and more exalted conceptions as their enlightment advanced. But the enemies of religion, as well as its ignorant votaries, are apt to think that when some theological

dogma has been overthrown by some discovery in science that religion itself is overthrown.

As regards the doctrines of evolution, as we stated on another accasion, we cannot see how that, even if they turn out to be true, it will militate against the belief that man has a soul, an immortal principle, that will live forever. While they are at variance with the preconceived notions of men, formed when their mental view was very limited, yet when properly considered they undermine no religious notion. They only humiliate us in the way of causing us to change our belief, to which we have conceitedly attached a soundness. But those who, like Herbert Spencer, Huxley, Tyndall, and others, suppose that faith in spiritual things is destroyed by the discoveries of natural science, display as much ignorance as do the superstitious religionists who reject the truths of science for no other reason than that they seems to be antagonistic to their views of what revelation teaches.

Very recently a clergyman has written a work showing that evolution is not destructive of the religious sentiment; that it favors the most exalted conception of God; that it brings Nature into harmony with elevated religious feeling, and must be of great service to humanity in sweeping away many superstitions that have grown up in times of ignorance, and become associated and deeply involved with religious emotions.

Journal de Micrographie.—This is the title of a microscopical journal, commenced in June, in Paris. It is edited by the eminent French microscopist, Dr. J. Pelletan, author of "Le Microscope," and of "Manual d'Histologie," recently published. It seems strange, but it is nevertheless true, that notwithstanding microscopy in France is cultivated to so great an extent as it is in every department of science, especially in medicine, great attention being paid to histology and pathology, yet this is the first and only microscopical journal ever published there. As it 'has the field all to itself its circulation is very large.

We are indebted to Dr. J. Pelletan for imparting to us in some letters addressed to us by him, some valuable information in regard to microscopical subjects in France. We were much astonished to learn, by the same means,

how familiar he is with all that pertains to microscopy in this country.

In the last number received (September) of the *Journal* we find translated into French, and printed in full, the two articles which appeared in two different numbers of the MEDICAL NEWS, of Mr. Peet, of Baltimore; also a review of Mr. Gundlach's article, published in the NEWS during the summer, on the communication of Dr. Hunt in regard to Zentmayer's microscope.

LINDSAY & BLAKISTON'S PUBLICATIONS.—These well known Philadelphia publishers of medical works have issued their Visiting List for 1878. This convenient journal for the pocket, in which the physician is enabled to keep an account of his visits to his patients, and preserve memoranda of all kinds, has been before the profession for 20 years, and continues to be regarded the best of the kind that has yet been published. It is so near perfection that it is hardly to be expected that it can be improved upon.

This house have carefully revised their catalogue, reducing the price of many of their publications, so as to meet, as far as possible, the demand for books at lower prices. They are issuing a new series of medical text-books, or hand-books, for practitioners, moderate in size and price, and comprising a series of treatises on the elementary and practical branches of medicine. Each one complete in itself, prepared by men of established reputation.

Their catalogues can be obtained by addressing them at Philadelphia.

THE AMERICAN JOURNAL OF MEDICAL SCIENCES.—We have received the October number of this well-known and excellent Quarterly, published by Henry C. Lea, of Philadelphia, and edited by Drs. Isaac Hays and I. Minis Hays.

With this number it completes *the first half century* of its existence. Dr. Isaac Hays, its senior editor, was its sole editor until 1869, when his son, Dr. I. Minis Hays, became associated with him.

It has a standing fully equal to that of any medical journal published in the world. We wish it success in passing into the second half century of its existence.

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Original Contributions.

Brief Rejoinder to some Recent Articles by Dr. Roberts Bartholow.

BY DR. J. J. WOODWARD, U. S. Army, Washington, D. C.

In September, 1876, I delivered an address in Philadelphia, before the section of Medicine, International Medical Congress, on the subject, "Typho-malarial Fever: Is it a Special Type of Fever?" This address was prepared in response to a special invitation from the Committee of Arrangements, and, as my views on the subject in question had been misunderstood in certain quarters, in others intentionally misrepresented, I took the precaution to print it in pamphlet form, and distributed copies to the members present immediately after its delivery, in order that there might be no honest mistake about what I really said and meant.

In the course of this address I thought proper to respond, in a temperate and courteous manner, to the only published criticisms of my opinions with regard to typho-malarial fever that had been brought to my notice. Notwithstanding some slanderous insinuations to the contrary, I had never claimed any exemption from criticism, and certainly had shown no particular sensitiveness on the subject of the two criticisms to which I replied, for one of them had been made ten years, the other two years, before, and I had never previously opened my mouth with regard to either. I have always recognized the undoubted right of others to object to my views, to criticise or controvert them, if they appeared inaccurate or erroneous; but I also claim to excercise the equally

undoubted right to reply, when and where I please, to criticisms that appear to me unjust, self-contradicting, or untrue, and I hold that critic up to public scorn who, having first struck a blow in fancied security, pleads the statute of limitations in bar of a return. Nor did my reply to my critics constitute any considerable portion of my "Address," which was devoted to much weightier matters; it occupied less than four pages out of more than forty, for each of the two critics named was a witness against the other, and one of them contradicted himself, so that a long reply seemed quite unnecessary.

One of the critics thus answered was Dr. Roberts Bartholow, whose objections seemed important to me only because of the prominence given to them by their publication in the very excellent medical volume of the "Memoirs of the U. S. Sanitary Commission," New York, 1867. That I had not noticed this criticism before was due solely to the fact that I had published nothing on the subject since it appeared, and did not consider it sufficiently important to call for a separate publication. In my reply I showed that my critic supported his attack by advancing views which were contradicted by the statements he himself had made in other parts of the same volume. I complained that in an important particular he had gone "to the extent of misrepresenting my views," and I actually spoke of his attack as having been made with "a good deal of acrimony."

This temperate reply appears to have set my critic beside himself with rage. An annonymous letter published in his journal, *The Clinic*, a week or two after, (September 23, 1876, p. 160,) devoted to me a paragraph in which coarse attempts at ridicule were enlivened by falsely representing me as making sundry absurd claims which I never made. Very shame seems to have prevented the writer from appending his name to this article. The same journal, March 17, 1877, contained a brief article headed "Personal," this time signed by Dr. Bartholow, who complains of the reply in my address, and says: "I propose to pay my respects to this aggressive individual, who fights from behind the Surgeon General's bureau, but who very humanely informs those who differ from him, that he is a 'terrible fellow in a controversy.'" I never knew before that it was aggressive to reply to an aggressor, and do not understand what is intended by the

words "fights behind the Surgeon General's bureau," which I suppose to be simply a puerile attempt to excite prejudice; but the statement with which the quotation concludes, I pronounce a wanton invention, which has no shadow of support in any written or spoken word of mine. Finally, Dr. Bartholow has published a series of articles, entitled "Typho-malarial Fever and the Opinions of Dr. Woodward, U. S. A., in 1863 and 1877,"—*The Clinic*, Sept 8, 15 and 22, 1877,—in which he attempts a formal reply to the part of my Address that refers to him; but apparently. feeling the weakness of his case, spices his disjointed arguments with many offensive and unjust personalities, which I will leave, without further notice, to the censure of those who may chance to read them. Nevertheless, inasmuch as the writer in these articles has thought proper to reiterate the misrepresentations of my opinions, of which I complained in my Adress, I have thought proper to publish the following rejoinder to what, out of courtesy, I will call the argumentative part of the articles.

These articles maintain four propositions: First, that the original attack by Dr. Bartholow in the Memoirs of the Sanitary Commission, was not acrimonious; Second, that the several essays do not contradict each other as I said they did; Third, that the one complained of did not misrepresent my views; and, Fourth, that I now hold very different views from what I held in 1863, and, therefore, that his criticisms of my original views were just. I propose to show that no one of these propositions is sustained by the record.

1. Dr. Bartholow denies that his original attack was "acrimonious"—*The Clinic*, Sept. 8, p. 110. It certainly seemed so to me, and I ask the reader to examine especially Chapter 2, p. 192–207 of the Memoirs cited, and judge for himself whether the expression, "a good deal of acrimony," was not well applied. Dr. Bartholow himself inadvertently acknowledges, with regard to it, a little further on,—*The Clinic*, Sept. 22, p. 133—"The especial purpose of my note on Camp Fevers was to emphasize the fact, that Dr. Woodward's teachings exerted a mischevious influence." But he affects to think that he carried out this benevolent purpose in a most complimentary manner, and, to give force to his statement, does not hesitate to disclose that his criticisms, of which he

gives a few examples, "are not equal in number and warmth to the complimentary terms in which I have expressed my sense of Dr. Woodward's great merits," etc.,—*The Clinic*, Sept, 8, p. 110—a statement which would be very civil if it were true; but I challenge Dr. Bartholow to point out any such "complimentary terms" in the papers complained of.

2. Whether Dr. Bartholow contradicted himself in the Memoirs of the Sanitary Commission, is a simple question of fact. In my Address I not only pointed out some of the contradictions, but gave the page on which each of the sentences I quoted can be found. Dr. Bartholow does not even pretend that I have misquoted him, but asserts that I only "take a sentence here and there," and so do him injustice. He adds: "This is an old trick of controversialists, which Dr. Woodward will learn is not successful, because I will lay before my readers all that I have written on the subject in question." But this he takes very good care not to do. I need waste no words to sustain the criticism I made in Philadelphia; I simply ask those who care to know the facts, to examine pp. 40 and 41 of my Address, and compare the several articles by Dr. Bartholow in the Memoirs of the Sanitary Commission with each other. With regard to these articles Dr. Bartholow appears to be quite sensitive, at which I do not wonder. He seems to wish them to be forgotten, and cries: "Why exhume the opinions of ten years ago and give them life by airing them? It would have been better for Dr. Woodward not to disturb the ashes of a dead past," etc. etc.—*The Clinic*, Sept 15, p. 121. I do not wonder that Dr. Bartholow should wish these articles to be forgotten, and I suppose that fortune will grant his wishes in due time. But since he employed the publicity which the publication of the Memoirs afforded him, to make an elaborate attack upon views which I believe to be true, he has no right to complain that I reply when and where it is most convenient to me.

3. Dr. Bartholow not only declares that he did not misrepresent my views, but he reaffirms his misrepresentation: "I now reaffirm that his published opinions indicate the conviction which he entertained, that there were really no cases wholly typhoid, or wholly remittent in the army."—*The Clinic*, Sept. 22, p. 133. This was the very misrepresentation of which I complained in my Address.

In reply, I stated that "I had distinctly affirmed the occurrence of such cases in all my publications on the subject." Dr. Bartholow now flatly contradicts me, and "reaffirms" his misrepresentation. Is his affirmation in a accordance with the facts, or is mine? Now, previously to the Address, I had made but three publications on this subject. In the first, in Circular No. 15, Surgeon General's Office, September 8, 1863, I said, page 4, that although in my opinion the majority of the camp fevers of the army where of a mixed character, "a certain amount of uncomplicated enteric and remittent fever certainly did occur." In my second publication, "Outlines of the Chief Camp Diseases," etc., Philadelphia, 1863—which Dr. Bartholow must have had before him when he wrote, for he quotes it—I commenced the chapter on Camp Fevers, Chap, 3, p. 74–5, with the following paragraphs:

"Under the designation of *camp fevers* may be inincluded all the continued fevers occurring in the army. Passing by *typhus fever*, which has been the scourge of European armies, and *yellow fever*, which is the peculiar epidemic of the Gulf coast, neither of which has, however, prevailed to any extent during the present war, these fevers may be divided into three principal groups: *typhoid fever*, with or without scorbutic complications; *malarial remittent fever*, with or without scorbutic complications; and a vast group of mixed cases, in which the malarial and typhoid elements are variously combined with each other and with the scorbutic taint, and for which the author proposed the name of *typho-malarial fever*, which was adopted by the Army Board before alluded to as having prepared the statistical form of Sick Report at present in use in the army.

"Typho-malarial fever is the characteristic camp fever of the army at the present time, and has been so since the commencement of the war. Cases of ordinary typhoid fever, unattended with malarial phenomena, do, undoubtedly, occur. Much more frequent are malarial fevers, which in their course assume a continued form, without presenting the abdominal symptoms of true typhoid disease, and without exhibiting, in fatal cases, the characteristic intestinal lesion; but in the great majority of cases the well-marked enteric symptoms are complicated by malarial and scorbutic phenomena, which pro-

duce decided modifications in the course of the disease, and in the mode of convalescence which follows it, and which requires a treatment modified in accordance with the individual conditions of each case."

In the third publication, in Circular No. 6, Surgeon-General's Office, 1865, I was equally explicit. I declared: "Undoubtedly, cases of simple enteric and simple remittent fevers did occur"—p. 109. These extracts are sufficient to show how careful I have been to guard my readers against supposing that I believed none other than mixed (typho-malarial) fever cases to have existed during the war. I said, also, and I still maintain the opinion, that I believe the typho-malarial cases to have been more frequent in our camps than the uncomplicated forms; I said, and I still maintain the opinion, that I believed them to have constituted the majority of our camp fevers. It would have been legitimate for Dr. Bartholow to have controverted this view, and to have tried to show, either that I exaggerated the frequency of these mixed cases, or even that there were none such. But this honest course did not suit his peculiar rhetoric. He has preferred to misrepresent my views, and, having had the injustice pointed out to him, to "reaffirm" the misrepresentation. Just what his affirmations are worth I leave the reader to judge, *ex uno disce omnes.*

4. Dr. Bartholow endeavors to show that I now hold very different views from those I maintained in 1863. Now, it is true, that in my Philadelphia address I indicated certain errors into which I had fallen in interpreting my early observations with regard to the intestinal lesions in typho-malarial cases. I pointed out these errors with a completeness and frankness which appears astonishing to my antagonist, to whose nature scientific honesty is so entirely foreign, that he offensively declares that "the experienced observer will see in this effusively frank recantation only the perfection of art."—*The Clinic*, Sept. 15, page 123. But the "experienced observer" who reads my Address will, I think, also see that while I willingly "recanted" certain errors of detail, because I believed them to be incorrect, I held fast to the general doctrine, as I originally advanced it, because I still believe it to be true. In my book on "Camp Diseases," I declared that typho-malarial fever is "not to be regarded as a new disease," but rather as a "hybrid of old and well-known pathological

conditions," pp. 110 and 111. In my Address I advocated the very same opinion, and, after it was concluded, offered for discussion the following proposition, which embraces, in a few words, the views I have always held:

"Typho-malarial fever is not a special or distinctive type of disease, but the term may be conveniently applied to all the compound forms of fever which result from the combined influence of the causes of the malarial fevers and of typhoid fever."

This proposition, after a debate, in which almost every speaker expressed himself as fully in accord with me, and in the course of which Dr. Bartholow, who was present, was patiently heard, was adopted, notwithstanding his objections, by an overwhelming majority as the sense of the Section of Medicine of the International Medical Congress.

In conclusion, I may allude to one other point. Dr. Bartholow says (*The Clinic*, Sept. 22, p. 133): "It is with great reluctance that we now exhume facts which indicate that even the term typho-malarial is hardly new"— and then goes on to make remarks and citations in illustration of the views of the distinguished Dr. Daniel Drake, which he borrows unblushingly from my Address (pp. 32 and 33). It was I who "exhumed" the facts, and whoever will compare the passage in the Address printed in 1876 with that in *The Clinic*, printed a year later, will recognize my critic to be in this connection a mere borrower.

And with this I take leave of Dr. Bartholow. I decline in advance to notice any further misrepresentations or personalties in which he may hereafter think proper to indulge. I feel quite willing to leave an offender of this kind to the judgment of the medical public; but inasmuch as he has printed his articles in *The Clinic* in pamphlet form, and informed his readers that any one can obtain a copy "free of charge by asking for it"—*The Clinic*, Sept. 22, pp. 134—I have sent some copies of my Address to the editor of this journal, of whom it can also be obtained "free of charge" by any one who cares to see for himself how fully the views I now hold agree with those advanced in 1863 in my book on "Camp Diseases."

Indications for the Enucleation of the Eye-ball, and the Correction of the Deformity, by the insertion of an artificial Eye.

By A. Friedenwald, M. D., Professer of Diseases of the Eye and Ear, College of Physicians and Surgeons, Baltimore.

Read before the Medical and Chirurgical Faculty of Maryland

The fact has long since been satisforily established, that when one eye has been destroyed by injury or disease, and especially when it remains in an irritated condition, that the other is in the peril of meeting a similar fate, through a process termed sympathetic opthalmia. The first advance made to avert these calamities is due to veterinary surgery. We are told that farriers regarded it as a most fortunate occurrence when a horse that had partially lost one eye, would receive such an injury as would completely disorganize it; learning from such experiences that the remaining eye would thereby be placed in, comparatively, a condition of security. Profiting from these observations, they, at a latter period, sought to render a crippled eye harmless by destroying it entirely; first, by the introduction of pieces of lime in the conjunctival sac, and then adopting the method of thrusting a pointed instrument into the eye, to induce suppurative inflammation and collapse of the eye-ball. Wardrop operated on horses by making a free incision in the cornea, through which he evacuated the lens and vitreous matter.

Though these operations were followed by highly satisfactory results, suffering mankind was not, until rather recent times, permitted to participate fully in the benefits thus offered by science. The prompt results following the removal of the eye, both as regards the relieving of pain, and the establishing of permanent security for the remaining sound eye, in cases where sympathetic opthalmia was apprehended, could certainly not have escaped the observation of the older surgeons. In what manner are we therefore to explain the fact, that the operation was so seldom resorted to by them? I think it is partly attributable to the insidious approach of sympathetic ophthalmia, by which the surgeon was frequently misled. The patient would perhaps complain of a little pain over

the still useful eye, of an annoying sensitiveness to light, of an inconvenience experienced in using the eye, and then these symptoms would for a time disappear; and the surgeon would either place undue credit to the remedies which he had employed, or would undervalue the importance of the symptoms when they had subsided spontaneously. A second attack, under these circumstances, would be met by a degree of unconcern, and the error would, perhaps, have not been discovered before irremediable damage had been done. On the other hand, the surgeon, fully appreciating the danger impending in these cases, would offer relief by an opperation, the mutilating character of which would often deter the patient from submitting to it. Modern ophthalmology has introduced incalculable improvements in this regard. We can now say with absolute certainty, that certain injuries will not only destroy the eye originally affected, but will, if the eye so injured be not removed, inevitably involve the sound eye. The symptoms of sympathetic ophthalmia have been accurately studied, and that stage clearly defined when the operation may be performed with the best prospects; while, if the case be permitted to continue until the sound eye becomes seriously affected, we now know that the case is almost hopeless. The operation having been so modified that an artificial eye can be worn, has lost much of its terror, and the patient can now be easily persuaded to part with an eye that is of no use to him, and exposes him to great danger, in exchange for an artificial one, by which his normal appearance is restored.

Experience has established the fact that in many cases an eye destroyed by disease or injury may for a long time give the patient not the least trouble, when suddenly it may be affected with pain, and sooner or later the sound eye will be implicated. This has induced some surgeons to regard every eye, the use of which has been lost through inflammation, as a lurking enemy, and should be removed under all circumstances, inasmuch as the patient can be supplied with an artificial one, which gives him no trouble, and improves his appearance. I am not prepared to share this opinion. We all know from experience that very many persons pass through a lifetime with but one good eye without the least difficulty, so far as the sound eye is concerned, and in some instances not materially injured in their appearance. I propose

to show, in another part of this paper, that artificial eyes cannot always be worn with comfort and impunity, as is generally supposed. When an eye has been reduced to that condition in which it not only becomes useless, but menaces the remaining one, its removal becomes an imperative necessity, whether an artificial one can be worn or not. On the other hand, I regard it as unjustifiable, on the part of the surgeon, to subject the patient to a mutilating operation for the purpose of obviating a condition which really may never take place, especially as the patient will receive timely warning when such a procedure will become necessary.

There is one class of injuries which, from the very time of their occurrence, require the most decisive action. I refer to those cases where a foreign body enters the eye-ball, and locates itself beyond the reach of removal. We need not hesitate to say that an eye in this state is necessarily lost, even if it retains some vision for a time; and there cannot be the slightest doubt entertained as to the fate of the sound eye, if this condition be permitted to continue. The surgeon will save the patient an immense amount of unnecessary suffering by securing his consent to the operation as soon as possible, for sooner or later the torture to which he will be subjected will force him to yield to the advice of his attendant, no matter how great may have been his aversion thereto in the beginning.

Wounds involving the ciliary region are justly regarded as of the greatest significance, and should be most carefully watched. Almost all cases of this kind will require the prompt enucleation of the eye-ball.

When an eye has been rendered useless, whether from injury or disease, and remains persistently in a painful state, especially when it continues to be painful to the touch, the danger is exceedingly great that sympathetic ophthalmia will be induced, and the removal of the diseased eye is urgently demanded; provided the case cannot be relieved by milder means. I attach considerable importance to this qualification. I have repeatedly removed all difficulty permanently in cases of this character, which were superinduced by recurrent plastic iritis, or iridochoroiditis, by simply performing an iridectomy. Another condition, which will often respond most satisfactorily to this treatment, is that following injuries or

diseases attended by increased intra-ocular pressure. By diminishing the tension the pain is permanently relieved and the eye rendered harmless; and often in these no very obvious change in the natural appearance of the eye follows.

We are sometimes forced to have recourse to enucleation of the eye-ball where sympathetic ophthalmia is not so very apt to follow, and where the operation is directed to meet another indication. I allude to those cases where the eye has been considerably lacerated, and where the eye-ball will finally, in consequence of suppurative inflammation, waste away, and reach a condition not materially differing from that induced by an enucleation. If the operation be not performed in these cases, considerable suffering may ensue, and this may be prolonged for weeks and months; whereas, if the eye be enucleated, pain is instantly relieved, and the patient can be discharged generally within eight or ten days.

In cases of intra-ocular tumors, the operation should be performed at an early stage of the disease, certainly before the tumors have by their growth broken through the tunics of the eye; for by an early operation much suffering can be avoided, and in the case of malignant tumors the advantage gained is more likely to be of a permanent character.

I shall now briefly notice the difficulties attending the wearing of artificial eyes alluded to in a previous part of this paper.

In the first place, a pecuniary expense is thereby incurred, which often exceeds the means of a great number of patients; for those upon whom enucleation is performed belong largely to the laboring class. In speaking of the expense I do not mean the amount alone which is required to secure the first artificial eye, but also the considerable amount that will be required by the necessity of frequently changing the eye when it has lost its polished surface, to avoid the irritation of the conjunctiva which otherwise is sure to follow. Furthermore, they are very easily broken, sometimes presenting a crack, due simply to the change of temperature to which they have accidently been subjected.

There is perhaps no case where an artificial eye is worn in which we do not find an irritation presenting itself in the conjunctiva, which is attended by a purulent discharge.

Sometimes this may not be greatly complained of, but at others it annoys the patient exceedingly, the skin of the adjacent parts becoming excoriated by the discharge, and quite a painful condition of the conjunctival sac being established. A case has fallen under my observation where so much pain was produced, though the eye had been selected with the greatest care, that the patient, a female, refused, after repeated trials, to submit to what she regarded as an intolerable torture. We need not wonder at this, when we learn from the gynæcologist that pessaries, though carefully constructed, are not well tolerated in the vaginal mucous cavity.

In a number of cases where the artificial eye had been worn for a number of years, and the patient had submitted to the persistent irritation on account of the cosmetic consideration, I have seen excrescences shoot up from the sulcus in which the eye rested, and these eventually so altered the shape of the cavity that no eye could be retained; and in one instance I have seen an epithelioma occur, as a consequence of the constant mechanical irritation to which the parts had been exposed.

Keratitis and Iritis.

By W. R. Amick, M. D., Cincinnati, Ohio.

September 1st, Philip H. was playing with some boys, when one of them threw some old mortar and struck him in the right eye. He began to rub the eye immediately, which caused severe pain. Small pieces of the mortar remained under the lids for sometime, and before they were all removed, considerable inflammation had supervened. After the pieces were removed his parents supposed that the inflammatory symptoms would pass away without treatment, so no special attention was given the eye for nearly two weeks. At this time he came under our charge. It was almost evident, without any examination, that he had corneal trouble, as he kept the eye closed, and made every effort to protect it from the light. Even a moderate amount of light on the lids would cause him to place his hand over the eye.

He complained of severe pain in and around the eye, extending up over the corresponding side of the head.

He also complained of cephalalgia throughout the frontal region, being more marked on the right side. On opening the lids, hot scalding tears streamed down over the cheek. The conjunctiva of the lids was intensly congested, and a very marked circumorbital rosy zone existed. On the cornea, directly over the pupil, there existed a light, yellowish brown opacity, about three lines long, and a line in width. By oblique illumination, it could be seen that the conjunctival layer of the cornea was removed, and the smooth reflection of light from the surface was interrupted along the course of the opacity, these revealing a long superficial ulcer. The rest of the cornea appeared more or less hazy. The iris could scarcely be seen, but had a dull brownish color; the fibrillæ were very indistinct. The pupil was contracted, and did not respond to light, but it could not be tested properly at this time on account of the sensibility to light, which would produce blepharospasm in a short time. Atropine drops were used every two hours, together with the following—

℞. Hydrarg. Chlor. Mit. et
Pulv. Opii āā gr. iv
Sacch. Lac. gr. xii
M. Ft. chart. No. viii.

Sig. One every three hours.

About the only change that could be noticed on the following day was, that the eye was not quite so sensitive to the light. This treatment was continued three days, when the iris was dilated about one half, and the ciliary neuralgia had disappeared. The powders were then stopped. The day following this it rained, and he got quite damp. The result was that the iris contracted again. The powders were ordered as before, and the atropine drops to be used every two hours. At the end of three days more there was no dilatation, and the ulcer of the cornea was considerably improved. The drops were ordered to be used every ten minutes for an hour, this to be repeated three times a day. In addition, the powdered atropia was used once a day, placing it with a probe on the conjunctiva of the lower lid. This did not produce dilatation of the pupil, and four leeches were placed on the temple. Following this there was a little dilatation, but it did not amount to very much until the

second day afterwards. Then it dilated about one half and then remained stationary for a week. During this time the ulcer filled up very nicely, leaving a grayish opacity that was not very dense. After this the powdered atropia and powders were discontinued, and the drops used every three hours. The pupil then dilated completely. Before using the powdered atropia the conjunctivitis had subsided to a considerable extent, but when it was applied the congestion returned, and remained very marked as long as it was continued. As soon as we ceased to use it the conjunctival congestion passed away, to a great extent, and it was at this time that the iris dilated fully. Possibly it was too irritating in its crude state to produce the desired effect. At the commencement there was some sympathetic trouble in the left eye, but it did not require any treatment, as it passed away as soon as improvement began in the right eye. A compress bandage was placed upon the eye during the first week of treatment, but afterward he simply used a shade, as the former was painful. As soon as the iris dilated completely, all of the symptoms began to improve, but it was four months before the opacity disappeared entirely from the cornea.

After the powdered atropia had been used a couple of times, he complained of a dryness of the fauces and a burning sensation in the throat. This was due to the solution passing down through the nasal duct. This sensation passed away when the powder was discontinued.

From the nature of the ulcer I do not think that there is any doubt but that it was caused by rubbing the eye while the pieces of mortar were under the lids. The little grains of sand and concrete have sharp angles and corners, and by being pressed upon the cornea at the same time that they were drawn over its surface, they would naturally cut or scratch it. Besides this, lime itself is a caustic, and its action, especially when in a pure state, is to destroy the texture of the structure with which it is brought in contact.

Mackenzie says that lime, whether in the state of quick-lime or slaked, or mixed with sand, so as to form mortar, acts very injuriously on the conjunctiva. It is also apt to affect violently the proper substance of the cornea, and sometimes totally destroys the eye. One of the first effects observed to arise from the intrusion of

lime, in any of the above mentioned states, is that the sclerotic and palpebral portions of the conjunctiva become white, swell, and pull off, being, in fact, decomposed by the caustic action of the substance. The corneal epithelium suffers a similar change. This decomposition of the conjunctiva is produced very rapidly, so that it can very rarely be prevented by a removal of the lime. When the corneal conjunctiva has peeled off, in only a small portion of its extent, a shallow depression is visible on the surface of the cornea, with irregular edges.

The ultimate effects arising from the intrusion of lime into the eye depend on the degree of causticity, the quantity, and the length of time that the substance has been allowed to remain in contact with the conjunctiva. Common mortar, falling into the eye, and quickly removed, generally acts only as a severe stimulant, causing increased redness, pain and epiphora, followed by a puro-mucous discharge. But even when quickly removed, its action may have been so violent that vision would be destroyed.

In the case that we have given the lime was in old mortar, and did not have that degree of causticity that is possessed by it in its crude or fresh state.

In whatever state the lime may be, it ought to be removed instantly. First, by opening the lids, and using a probe or spatula to remove the larger particles. After this, use a syringe to wash away all of the smaller pieces. The conjunctivitis can be treated with a solution of nitrate of silver, or almost any of the ordinary astringents. If there are any abrasions of the cornea, the solutions of lead should be avoided, as it may be precipitated.

Lawrence says, after the lime has been removed from the eye, if it should seem probable that the caustic action of the lime is not at an end, vinegar and water may be applied to the eye.

A solution of gum Arabic has been recommended for the removal of foreign particles that are between the lids and eye-ball. This solution does not produce any disagreeable sensation; it instantaneously removes the pain and pressure by enveloping the foreign body, softening it, and sliding with it out of the eye.

Wells says, in speaking of injuries from lime, that if the patient is seen at once, a weak solution of vinegar and water, or of dilute acetic acid, should be very freely

injected under the lids; this will produce an innocuous acetate of lime. Then a few drops of olive or castor oil should be applied to the eye, so as to lubricate the surface of the conjunctiva, and the surgeon, everting both lids, should proceed to remove every particle of lime. After this is done the eye should be well washed by letting a stream of lukewarm water from a sponge or syringe play upon the conjunctiva. A few drops of olive oil should be applied three or four times a day.

If there is much conjunctivitis with a muco-purulent discharge, mild astringent collyria of sulphate of zinc, or nitrate of silver, must be employed, or the eye may frequently be washed with a glycerine lotion, a little being allowed to flow into the eye. If there is much irritation they should not be used, but soothing applications, such as belladonna lotion, compound belladonna ointment rubbed on the forehead, poppy fomentations, etc.

Selections.

Meeting of the American Association for the Cure of Inebriates.

The eighth annual meeting of the American Association for the Cure of Inebriates, met in Chicago recently, the President, Dr. T. L. Mason, of Brooklyn, N. Y., in the chair.

The Secretary read a paper on "The Responsibility of the Production of Opium Inebriety," which had been prepared by Dr. J. B. Matteson, of Brooklyn.

The writer set forth that, within the last two or three decades, the consumption of opium has increased far in advance of its direct therapeutical need. The question to consider was whether patients indulged in the use of opium for the purpose of obtaining transient happiness or oblivion, or whether, once ordered by the physician and continued indefinitely, its use caused such mental and physical changes as to engender a constant demand for it. The vast preponderance of testimony was to the effect that its use was often entered upon unconsciously, and continued until it became a physical necessity. High authorities concur that the opium habit has its inception

in prescriptions ordered by physicians. It is, therefore, advisable not to recommend opium continuously for the purpose of allaying pain, especially with patients of a nervous temperament, lest the physician might become the innocent cause of setting the spark to the fire that may only be extinguished with life. The writer held that fully 80 per cent. of the cases of opium inebriety in this country may be traced to opiate prescriptions. Physicians are too ready to prescribe opiates for the relief of pain or insomnia, and too careless about seeing that, when the strict therapeutical necessity for its use had been fulfilled, the use be discontinued.

Dr; Widney said that in his experience South during the war, when opium was very scarce, the persons who had been in the habit of using it turned their attention to alcohol as a substitute. In one caee a woman who had been in the habit of taking as high as twenty grains of morphine a day, drank a quart of whisky without becoming intoxicated. Persons could use alcohol for a longer time than they could opium without becoming dependent upon it. He believed that legislation was necessary for the control of the sale of opium and its preparations.

The Rev. John Willet believed that the charges against doctors were too sweeping, and that they were less responsible than the druggists. Great difficulty existed in reaching the facts, owing to the utter want of veracity on the part of the patients. No opium eater, in his experience, ever told the truth in regard to the origin of the habit in them. A whisky drinker would lie, but an opium eater would keep on lying all the time. The habit arises insidiously and by accident more than in any other way, and physicians, in order to guard against the danger, should watch their patients, and substitute other and harmless prescriptions.

Dr. Earle concurred with the last speaker that physicians were not so much answerable as were the druggists. They filled prescriptions without the order of a physician, and he believed that under the law they were allowed to hold prescriptions as private property, and might continue to hold them indefinitely. This was all wrong, and legislative restriction was needed. He did not believe that the opium habit or the whisky habit were diseases.

Dr. Day, of Boston, had considerable experience of such

cases, and considered that the origin of the habit was more often accidental than otherwise. He blamed the druggists for the indiscriminate filling of prescriptions. He also recommended that special care should be given to the control of the sale and use of opiates. The opium habit was a most fearful disease.

The Chair considered the subject a most important one. The importations of opium are largely increasing every year, and the effect of its use on the race is very profound and wide-reaching. Somewhere a great responsibility existed, and he held the druggists most culpable. Many of them were as directly interested in the sale of opium and morphine as the saloon keeper was in selling liquor.

The Rev. John Willet followed with an elaborate paper on the diseased appetite of the drunkard, and its cure. Mr. Willet utterly disowned the miraculous-cure theory advanced by the new order of religio-temperance teachers, and claimed the recovery of the drunkard from his degraded condition must be attained by human means. He invited the "deluded zealots," who insist that the drunkard's habit and appetite can be cured by miraculous interposition, to visit an inebriate asylum and experiment on its inmates.

Abstract of a Clinic by Prof. Flint, Bellevue Hospital, New York.

ENDOCARDITIS.

Before introducing the next patient I wish to make a few general remarks on the inflammatory affections of the heart. Carditis is a subject of little importance, and need not detain us; but endocarditis is deserving of the closest attention on account of the very serious results which are so apt to follow it. It is a remarkable fact that this affection was utterly unknown until very recent times, and that its discoverer, the distinguished Bouillaud, is still living. Perpaps, however, it is not so strange, after all, that it escaped notice so long, since we never get acute symptoms with it except when it occurs in the rare form of ulcerative endocarditis. We are perfectly familiar with it now, in connection with rheumatism and Bright's disease, and yet even in acute rheumatism, when it sets

in, there is no appreciable difference in the symptoms. We have to depend entirely on physical examination for its detection, and this art, as you are aware, has not been known long. The patient whom I now bring before you entered the hospital while suffering from acute tubal nephritis, but had no heart-trouble whatever. Afterwards it was noticed that he had, and the murmur heard was a mitral systolic one, loud, rough, and for the most part confined to the præcordium. It was never regurgitant (not being transmitted beyond the apex). Now we have a basis for diagnosis.

The history of the case is as follows: James G., 40 years of age, and a native of England, was admitted to the hospital about a fortnight ago. He is a gardener by occupation, and his family history is good. He acknowledges that he is a hard drinker (taking more or less liquor before breakfast), but denies that he has ever had venereal disease. His health was good up to the commencement of his present attack. Three weeks before that time he caught cold, and drank an unusual quantity of spirits. Somewhat later he noticed some œdema of the feet, and this extended until his whole body became water-logged. At the same time he suffered from headache, nausea, and vomiting; but he nevertheless continued working as well as drinking. The night before his admission he had a violent attack of delirium, three men being required to hold him in bed. He says that for six months past he has been passing a larger quantity of urine than normal, and that there has been no change in this respect of late. On admission, it was found that he was suffering from general œdema, but the chest-sounds were normal. The urine was markedly albuminous, and contained both large and small hyaline casts. Under the influence of acute catharsis, and cupping over the region of the kidneys, the œdema rapidly disappeared. There was at once a marked improvement in his condition, and the delirium from which he was suffering, when admitted, gradually subsided. He was afterwards put on digitalis.

One week ago he complained of some pain in the chest, and on examination there was discovered a soft blowing murmur at both the apex and base of the heart. It was loud and rough, extending over the entire cardiac area. We have here the evidence of an acute endocarditis. In listening to the murmur you will notice the difference

in the sound over the apex and over the body. This has no special significance, and is simply due to the different conditions in the different parts. The patient is doing well; but it is still a question in his case whether the acute affection did not supervene upon a chronic one. If the albumen does not soon disappear, we shall conclude either this, or that the present is one of those rare cases in which chronic Bright's disease succeeds to acute nephritis.

PERICARDITIS.

While speaking upon these inflammatory cardiac affections, I should like to have an acute case of pericarditis to show you, but, unfortunately, there are none in the house just now. Under these circumstances I shall have to do the best I can; and the patient whom I now present to you is one who had an attack of this affection a month ago. His history is as follows. William B., a native of Germany, twenty five years of age, and a seaman by occupation. He was healthy up to three years ago, when he had a severe attack of rheumatism, lasting about a month. He had no pain over the præcordial region at that time. (Pericarditis, as you are aware, is more frequently associated with rheumatism than with any other disease, but it is also met with in Bright's disease, as well as in pleurisy and pneumonia.) His present illness commenced one week before he was admitted to the hospital. This was another attack of acute articular rheumatism, and it first affected the ankles, then the knees, and afterwards the hands and fingers. Just before admission he noticed a pain over the præcordial region. It was at first dull, but afterwards very acute, and accompanied by dyspnœa.

It is noted in the history prepared by the house physician that the pain and swelling in the limbs were greatly relieved by the ride from his residence to the hospital in the ambulance, so that he was able to walk about the ward on his arrival here. This serves to show the benefit of what I may call methodic friction. When a joint is affected with acute rheumatism, great relief can be given by rubbing it with some lubricating liniment, at first with the lightest possible touch, and afterwards increasing the pressure applied until a very considerable amount of force can be used, to the great comfort of the patient. The ride in the ambulance, no doubt, had some such effect as this.

At present the patient suffers from no dyspnœa, and the pain has almost entirely disappeared. On auscultation a loud, harsh friction-sound was heard all over the præcordial region, and also a soft blowing murmur at the apex, but not transmitted beyond. It may be laid down as a rule that when we have rheumatic pericarditis there is also endocarditis present. The treatment consisted at first of twenty grains of salicylic acid every three hours, together with counter-irritation over the heart. Afterwards the iodide of potassium was given. After the patient had been in the house a few days, the presence of fluid in the pericardial sac was detected, as well as in both pleural cavities. One week ago the note in the history is that the murmur still continues, but that the fluid is gradually diminishing, while the patient's condition is greatly improved. Personally I have not examined the patient as yet, and before doing so let me run over the physical signs of pericarditis. The friction-murmur, which is one of these characteristic signs, is always limited to the præcordium, or extends but very slightly beyond it. We are not told in the history that there was a large effusion in the pericardium in this case. Let us suppose that there was. We should then have found a total absence of heart impulse. On auscultation, the heart-sounds would have seemed all muffled and distant, and both the first and second sounds would have been very much alike. In such cases the first sound is always notably weak and valvular in character. Another indication of the affection is the area of dullness extending just over the area of the pericardial sac, which is visible to the eye, and appreciable to the touch in the form of a pyriform tumor. These signs afford the proof of pericarditis and pericardial effusion. At the present time the symptoms have entirely disappeared in this case. In addition, there is very little fluid in the pleura now, and the patient is practically well. It is remarkable that I do dot get any endocardial murmur whatever to-day; and I therefore conclude that this is one of those cases (an exception to the general rule) in which the murmur entirely disappears. This is due to the fact that the products of the inflammatory action lately present have all been washed away; and our patient is certainly to be congratulated upon such a desirable result.

JAUNDICE OF TWO YEARS' STANDING.

In this patient you see at once the yellow discoloration

of the skin, as well as of the conjunctiva. You notice, also, the darkness of the color, which, though not deep enough to constitute what is known as "black jaundice," is sufficient to show that the affection has already lasted for some time. Icterus is merely a symptom; but it always indicates obstruction. The most common cause of it is a duodenitis, and among the others may be mentioned the pressure of various tumors on the biliary ducts. The patient's name is James P., he is 51 years of age, and he was admitted three days ago. As far as I can make out, there is no history of acute duodenitis or of hepati ccolic; nor is there any evidence of the presence of a tumor. You may ask me, may this not be an affection of the liver itself? In this class of disease, however, there is, as a rule, no jaundice whatever. The rare affection known as acute yellow atrophy of the liver is an exception, but that is attended by numerous grave symptoms which are entirely lacking in the present case. The most probable condition here is a chronic inflammation of the duodenal mucous membrane; and I arrive at this conclusion by a process of exclusion, there being no history of gall-stones or of any other sort of a tumor. The patient tells us that his jaundice has continued now for two years; yet his digestion and his general health are good, though the stools are rather pale in color. The obstruction, then, is evidently not complete, and, as there is no reason to believe that it has increased any of late, he will probably remain in his present condition for an indefinite period. In the mean time I should not advise to pursue any active course of therapeutics, but, as long as he continues well and comfortable, simply adopt an expectant plan of treatment.

CIRRHOSIS OF THE LIVER.

Patrick C., aged 49, a native of Ireland, and a laborer. We find here a globular enlargement of the abdomen, with a sense of fluctuation. Hydroperitoneum, without any other dropsy, always points not only to an affection of the liver, but to one particular affection of that organ. We have no history of this case, but its etiology is all-sufficiently explained in one word,—"drink." Now let us put two or three questions to the patient. What have you been accustomed to drinking? "Spirits." Before breakfast? "Yes." How many glasses in the morning? "One, two, three, and sometimes four, according to circumstances." Then do you drink before dinner again?

"No." Do you drink much water with your liquor? "Very little, and often none at all." Now, gentlemen, we have here a typical illustration of the connection that exists between the use of spirits thus taken and cirrhosis of the liver. If an individual wishes to induldge in ardent spirits, and at the same time avoid cirrhosis, let him be careful not to take it either on an empty stomach or with but little or no water. The constant irritation from such drinking as our friend here has been accustomed to results, after a time, in a new formation (of fibrous tissue) which is probably of an inflammatory nature. Another effect that follows is impairment of the general nutrition, giving rise to emaciation, cachexia, etc.

In the way of treatment, the indication is to perform the operation of tapping just as soon as the quantity of effused fluid causes inconvenience to the patient. I would furthermore advise the repetition of the tapping as often as the abdomen increases again to an inconvenient size; since it can be done with impunity whenever there is a necessity for it. The time may come when the peritoneum will not fill up again; and I have myself observed this in occasional instances. I regard the treatment of cirrhosis by repeated tapping as much preferable to the active course of cathartics, diuretics, etc., which it is otherwise necessary to resort to.—*Medical Times.*

Cincho-Quinine.

Dr. Wm. A. Greene, of Macon, Ga., in an article on "Progressive Modern Pharmacy," contributed to the *American Medical Bi-weekly*, of September 1, 1877, after referring to the fact that various preparations of the cinchona alkaloids have been lately brought to the notice of the profession, "all claiming equal or superior virtues to the old familiar sulphate of quinine," goes on to say:

Having for more than twenty years practiced medicine in an intensely malarial region, I have given this subject more than ordinary attention. The present high price of sulphate of quinine has increased the interest of physicians concerning these preparations. I have used them all, but have had more experience with the cincho-quinine than any of the others, for the reason that I have

employed it longer, it having been placed in my hands some six or eight years since. It is a beautiful preparation of white amorphous scales, without the bitter, nauseous taste of quinia, and combines all the alkaloids of the cinchona bark, quinia, cinchonia, cinchonidia, and quinidia, which makes it most valuable for administration to sensitive and delicate females and children, and vastly increases its therapeutic powers in meeting increased complications in the treatment of disease when it is applicable.

Every observing physician knows that alkaloids act more rapidly and energetically than the drug from which they are prepared, and I wish to impress upon the minds of all who read this paper an important fact concerning the cincho-quinine, which is that it combines all the alkaloids of the cinchona bark, thus powerfully increasing and extending or widening its therapeutical and physiological action on the system in controlling disease. I consider this preparation already a fixture in our materia medica, and the equal of the sulphate of quinine in all respects, and under some circumstances preferable, and its cheapness puts it within the reach of every class. It has been severely tested by the Madras Commission appointed by the British East India Government to test the value of all the alkaloids of cinchona bark, and is being now extensively employed in that country, both in the army and in private practice.

In administering it to children who can not swallow pills, or to those adults who refuse to take them, I have been for many years combining it with tannin in the following formula, which completely destroys the slight bitter taste, and they take it readily:—

℞ Cincho-quinine . . . grs. xxiv.
Tannic acid . . . . . grs. vj.
Simp. syrup . . . . . ℥ ij. M.

Sig. One teaspoonful every two or three hours for a child two or three years old.

This contains about two grains to the dose, and is a valuable febrifuge and anti-periodic. The ingredients are increased according to the age of the patient. By continued use it does not oppress the stomach or produce cerebral disturbance. I have not time or space to enumerate all the advantages of this combination of alkaloids.

Use it in any and every case when you would prescribe quinine. I have found it a very good idea to prevent patients from knowing but that they are taking quinine, and I instruct my druggist, when I write a prescription containing quinine, to always substitute cincho-quinine, saying nothing about it, but being sure, however, only to charge for the latter. This is important to overcome the prejudice of the patient, against taking a substitute for quinine, as well as to remove the intolerable idea that they are the subjects of experiment.

Dr. Greene proceeds to give a detailed account of several cases in which he had employed the cincho-quinine with marked success, but our limits forbid us to quote anything more than the following brief reference to one of the special merits of this agent:—

When I told him that he had been taking a preparation of cinchona bark, he would not believe it (being a very intelligent gentleman) until I showed him the prescriptions and a bottle of the cincho-quinine. He had positively suffered no cerebral distress of any kind, nor nausea, both of which rendered quinine to him almost unbearable.

New York Pathological Society.

UNEXPECTED DEATH—FATTY DEGENERATION OF THE HEART.

Dr. Austin Flint exhibited a heart which he had not seen before that evening. It was not much enlarged in volume, the valves and coronary arteries were sound, and there was nothing found except the gross appearance of a certain amount of fatty degeneration. The history of the specimen was this: Some few days ago, early in the morning, two gentlemen drove in a carriage to Dr. Flint's house, and one of them said that his friend had heart disease, was afraid to walk from the curb to the office, and desired the doctor to come out and examine him. Dr. Flint did not think that there was any special danger in such an undertaking on the part of the patient, and the latter came in the office. The gait was slow and he manifested in manner and countenance a great deal of anxiety. Dr. F. found the heart palpitating. He satisfied himself that it could not be enlarged, that there was no valvular lesion, and informed the patient accordingly, assuring

him that there was no danger, and that he should make his mind easy. He was instructed, however, to come again for another examination, which he accordingly did the day following. At this examination the heart was beating rapidly, the impulse did not give the impression of feebleness, and there was a systolic murmur heard over the body of the heart, but not transmitted beyond the apex. The opinion of the previous day was repeated, and after receiving some general directions the patient left. Dr. F. had an urgent summons in the evening to which he would not respond, and Dr. Perry visited the patient. Dr F. remarked that there was one circumstance in the patient's history which did not however make the impression upon him which it should, and that was a period of unconsciousness after running upstairs. Dr. Perry obtained this history: The patient during the afternoon was seized with another fit of unconsciousness, which lasted for a few moments, during which time there was marked lividity. Dr. Perry, on his arrival, found the pulse not deficient in force, and beating with regularity. He recognized the murmur, but nothing else; gave a favorable prognosis, prescribed an ethereal stimulant and left. During the same night Dr. P. was again summoned to find to his surprise his patient moribund, unconscious, and with scarcely any appreciable pulse. Of course, in a short time, the patient died. Dr. Flint, in the absence of any better cause for death, assumed that fatty degeneration existed, and yet during life, notwithstanding careful examinations, no auscultatory evidence of such a condition was found. The case was of interest not only in itself, but as proving that there is no danger, and yet even at the risk of a mistake such an assurance could not be denied to them. In answer to questions from members, it was further stated that there was no membranous effusions in the meshes of the columnæ, that a few weeks before death the patient suffered from shortness of breath.

Dr. Janeway remarked that fatty degeneration of the heart was blamed for more sudden deaths than it deserved. Especially was this the case in deaths from chloroform, the slightest amount of extra fat upon the surface of the organ being seized as the immediate cause of death.

Dr. M. P. Jacobi referred in this connection to a specimen of heart presented last spring, in which the cause was not explained by any distinct pathological reason;

and Dr. Janeway called attention to specimens of heart containing air, likewise exhibited by him at a previous meeting.

CANCER OF THE STOMACH WITH ABSENCE OF PAIN.

Dr. E. C. Seguin presented a stomach removed from a patient whom he had seen in consultation with Dr. Thurman. The patient, aged 74 years, enjoyed good health until the summer of 1876, when she fell below par. She visited the Centennial, but went through it without a chair, thus showing a considerable amount of endurance for her years. After her return she suffered from dyspepsia, anorexia, and nausea. Dr. S. saw her Nov. 15th. The only symptom she then complained of was great weakness and marked emaciation. Dr. Thurman discovered a painless swelling in the left hypochondrium, just below the border of the ribs. From the absence of all positive symptoms this tumor, also discovered by Dr. Seguin, was thought by both gentlemen to be impacted fæces. The swelling was manipulated and enemata given, and after a few days the mass seemed to disappear after the discharge of several scybalous masses. In the beginning of December the symptoms of dyspepsia became more marked. The first vomiting occurred only two weeks before death; was very slight in character. About this time there was regurgitation of food, mixed with a little brownish liquid. At no time was there any coffee ground vomiting. The emaciation progressed, the repugnance to food was very great, and the loss of strength was extreme. Shortly after the disappearance of the tumor in the left hypochondrium, there was another tumor near the median line and on a level with the other tumor, which was duly recognized as an independent affair and as a cancerous growth. The specimen was chiefly interesting in connection with its clinical history. The specimen on examination was mainly composed of cylindrical epithelium.

Dr. Briddon referred to a case of cancer of the stomach, in which there was no pain or vomiting, but in which the diagnosis was made from the progressive emaciation. He asked if absence from pain was uncommon.

Dr. Flint answered that the absence of marked pain was the rule.

Dr. M. P. Jacobi remarked that, before arriving at a diagnosis of such cases by exclusion, two diseased condi-

tions should be taken into account, viz., the prodromic stage of leukæmia, and progressive pernicious anæmia.

Dr. Janeway mentioned a case of cancer of the stomach, the diagnosis of which he made by discovering the umbilicated nodules of cancer of the liver. As primary cancer of the liver is rare, and as secondary disease follows cancer of the stomach, the presumption is legitimate that the latter condition of things exists. In addition to this evidence, when a tumor of the stomach exists, the diagnosis is quite positive.

The Contagium Vivum Theory.

In view of the recent very elaborate argument of Dr. W. Roberts, F. R. S., Manchester, delivered at the British Medical Association Meeting, last August, any utterance to the contrary will be regarded as of interest. We have followed Dr. Roberts through his admirable argument, and we fully sympathise with the views advanced, based as they are upon recent actual pathological discoveries. We notice, however, a letter in the number of *The Lancet* of September 22d, in which an utterance of Dr. Burdon Sanderson is quoted to the following effect, "that it can scarely be supposed that the agent is a living organism," which is the active principle in septic liquids—and this substance, we may add, has been termed by Dr. Sanderson *pyrogen*, designating it a sort of chemical poison. His conclusions are said to have been based upon observations on 25 animals. Messrs. Cunningham and Lewis, in their letter before referred to, claim to base their observations upon experiments with 170 dogs, and originally published in the Tenth Annual Report of the Sanitary Commissioner with the government of India (1874), in which it is stated that "until it can be proved that living substances can withstand immersion in a fluid at a temperature of 212° Fahr., of some minutes duration, we have no hesitation in stating that the morbid phenomena which we have observed to follow the introduction into the animal economy of strained solutions of choleraic and normal alvine discharges, and of other decomposing animal substances, are not the result of infection with a material, the poisonous properties of which are dependent on its possessing vitality."

Messrs. Cunningham and Lewis further state, "it is satisfactory to find that so eminent an exponent of doctrines regarding the causation of disease, as is Dr. Burdon Sanderson, has now arrived at similar conclusions, and that he has, on the present occasion, submitted views for the guidance of the public health officers at home, so much in accordance with those previously arrived at, by the sister department in India; they quite agree that it would have been better for pathological science if such conclusions had not been so much overlooked, for the facts on which they are based are quite irreconcilable with the often too carelessly received assumption that the process of septic infection is dependent on the development of a living contagium," That Dr. Burdon Sanderson has come to regard the septic poison, called by him *pyrogen* as other than a living organism, is quite true; but we fear the gentlemen writing in *The Lancet* assume too much when they say that Dr. Burdon Sanderson's views have undergone any change necessary to bring them into harmony with their own. It is always very flattering to assnme to have been the first to point out a new fact in science, but the fact of Dr. Sanderson having given the septic poison its specific name *pyrogen*, is a sufficient evidence of his recognition of its true character, Messrs. Cunningham and Lewis to the contrary notwithstanding.

The theory of minute organisms and the specific origin of disease in the last few years, has done much to give exactness to medical thought in the direction of causation and pathology of a large number of diseases hitherto but imperfectly understood. It would be impracticable to follow Dr. Roberts through the whole of his argument, hence we can only refer our readers to this most masterly elucidation of the modern theory of contagious diseases. Bacteria are minute organisms which, although small in size and simple in form, are possessed of wonderful vital endowments. Dr. Roberts associates the yeast plant and its allies, and all the numerous species and varieties of bacteria under the general designation of *saprophytes*—a term intended to include under one head all the organisms associated with the decomposition and decay of organic matter. He proceeds to show that bacteria, like other organisms, arise from pre-existing parent germs, and are the actual agents in all decomposition and putrefaction. By his experiments he substantiates the propo-

sition that organic matter has no inherent power of generating bacteria, and no inherent power of passing into decomposition; also that bacteria are the actual agents of decomposition, and proves that their source is always from unfiltered air or water, which, if true, suggests either some mode of protecting wounds from contact with unfiltered air, or the application of some agent capable of destroying these germs as they come in contact with a wound. The latter is the principle adopted in Prof. Lister's anti-septic method. In considering septicæmia, Dr. Roberts alludes to the poison resulting from the decomposition of animal substances known as *pyrogen*, which, when absorbed, produces fever. The patient has come under the influence of the septic poison, which it is the object of the anti-septic treatment to defend him against. Now he says, although *pyrogen*, or septic poison, is the result of decomposition of animal substances, yet it is fully established that decomposition cannot take place without bacteria, and that bacteria are never produced spontaneously, but originate invariably from germs derived from the surrounding media.

Passing on to relapsing fever, he tells us that in 1872 Dr. Obermeier, of Berlin, discovered minute spiral organisms (spirilla) in the blood of patients suffering from relapsing fever, which discovery has since been fully verified by subsequent observations, and, most strange, "these organisms are found during the paroxysms, disappear at the crisis, and are absent during the apyrexial period." This he considers proof positive of the existence of a special disease germ, as a disturbing cause in fever. He next referred to splenic fever, concerning which he observed that the first trustworthy observation of the presence of organic forms in the infective diseases, was made in splenic fever. In 1855, Pollender discovered minute staff-shaped bacteria in this disease, which are short, straight, and motionless. This discovery has been confirmed by Brauell and Davaine, Bollinger, Klebs, Tiegel, and lastly by Koch. The *baccillus anthracis* present in splenic fever has been found by Koch to be preserved and reproduced by spores, and may exist for any length of time in a very persistent manner in dwellings and other places where the disease has been.

This method of research, by which cause and effect are so directly traced to each other, opens up a new era in

practical medicine, and sends us off in a new direction in the wake of a pathologist, who must ever lead the van in true medical progress, for thereby we are enabled to have something like rational ideas about the nature, origin and spread of zymotic diseases—a kind of knowledge most valuable to the sanitarian as well as the physician.—*Canada Lancet.*

The Relation of the Sexual Life to Acne on the Face.

Mr. Jonathan Hutchinson says, in a recent lecture respecting the acne of the young, there is a very widespread opinion that it is usually the result of sexual disturbance. I have no doubt that this belief is well founded to some extent, but we must beware of exaggerating it. The eruption is chiefly met with in young celibates, while it is very rare under the age of puberty, and is often benefitted by marriage. It is possible, however, that its comparative rarity in the married may, after all, be a coincidence and not a sequence, and that we ought to consider it not so much a disease peculiar to celibacy as to the special age at which a large majority of the population are celibates. It may certainly occur before puberty. I have seen it not very infrequently in children, and once in a very marked form in the face of an infant of six months. It is also frequent in married persons of both sexes, and sometimes originates after marriage. I have known it occur in ladies who were bearing children, and in whom the sexual functions appeared to be in perfect activity.

Making full allowance for a considerable number of acne cases in which there appears to be no sexual cause, there are yet, I think, good grounds for accepting the general belief that in a majority of instances such is the fact. The remarkable influence which the sexual functions exercise upon the general health and upon the state of the nervous system is among the secrets known unto all men. That they should have the power of making the sebaceous glands of the skin enlarge and suppurate is certainly, if thought about, one of the most strange. I suspect that, when it occurs, it is brought about through the agency of the nervous system rather than of the

blood. Women who are not liable to acne at other times sometimes have a few spots appear at each menstrual period, and that while in general health. I have been assured by gentlemen liable to nocturnal emissions that they invariably had an increase of acne spots after such occurrences, and sometimes so immediately, that it was impossible to believe that any material change in the blood had occurred. In other cases sexual intercourse may produce the same result.

It is certainly not in cases of extreme sexual exhaustion that acne is most common. I have seen many such patients, both with and without spermatorrhea, who had not a spot of acne, but, on the contrary, had skins which were perfectly smooth—in some instances florid, in others very pale. It is, perhaps, rather a condition of sexual irritability than exhaustion which produces acne. I do not think that the severity of the acne eruption bears any relation to the degree of sexual disturbance. In the worst cases that I have seen the patients often seemed to be in good health.

To dismiss the subject, we may remark that the prescriber ought, in respect to the acne of celibates, to bear in mind the possibility of a sexual cause. He will advise the adoption of measures likely to improve the general vigor, he will caution against any possible causes of debility, and he may, in some instances, suggest matrimony as the remedy most likely to prove successful.

A Case of Vomiting in Pregnancy Successfully Treated with Ingluvin (Ventriculus Callosus Galinaceus.)

By Charles G. Frowert, M. D., Philadelphia, Pa.

I was called to see Mrs. S., aged 27 years, June 8, 1877, who stated that she was suffering from constant and excessive nausea, which was only relieved upon assuming the recumbent posture. This continued, gradually increasing from day to day, until in a week it eventuated in retching and emesis, during which watery matter with an acid taste, followed by bile, was ejected. This reached such an extent that the patient had hardly any freedom from it during the whole twenty-four hours, vomiting as often as twelve times a day.

Taking this in connection with suppression of the menses, I concluded she was pregnant, and obtained from her the following history:

This was her third pregnancy. With the two preceding ones she suffered quite as much as with this, and, according to her statement, "had employed the services of several physicians, who administered almost every medicine in the pharmacopœia," but without avail, and she was obliged to lie in bed almost the entire nine months, in order to obtain relief from vomiting.

I proceeded to treat her in the orthodox way; advised the administration of a gentle cathartic, gave carbonic-acid water freely, and prescribed the following:

℞	Bismuthi subnit	ʒ j.
	Pepsinæ sacch	ʒ ss.
	Cerii oxalat	gr. ix.

M. In chart. No. vj. Div. et sig. one every two hours in carbonic acid water.

This was not followed by the slightest remission in the symptoms.

I then doubled the quantity in each powder; this also failed.

I finally increased the subnitrate of bismuth to ʒ i. doses every three hours, as recommended by several eminent physicians. This was followed by acid. hydrocyanic. dil., two drops every three hours, also highly spoken of. Various hygienic measures, as well as some other medicines, were resorted to, but all failed to bring about the desired relief.

About this time my attention was called to the preparation *ingluvin*, recommended in cases of this kind, and I determined to try it at once.

I prescribed *five grains* of Warner's ingluvin every two hours, and continued this for three or four days, without any appreciable result other than diminishing the violence of the attacks of retching and vomiting.

Increased the dose to *ten grains* every two hours. This seemed to relieve my patient to such an extent that she only vomited before meals, at the sight or smell of food.

I then increased the dose to fifteen grains, giving it half an hour before each meal. This soon had the desired effect of controlling the attacks. Continuing the same

dose every three hours, the vomiting and nausea ceased entirely in four or five days.

She made a complete recovery in the second month of her pregnancy, in three weeks from the time she commenced the use of ingluvin.

Ingluvin has certainly proved very efficacious in my hands, and I would therefore cordially recommend it to the medical profession as worthy of a trial. I consider it an invaluable remedy in obstinate cases of vomiting in pregnancy.

I might also add that I have used ingluvin successfully in several cases of chronic dyspepsia, in which pepsin had failed.

Alcohol and Diphtheria.

By E. N. Chapman, M. D.

The re-appearance of diphtheria, the winter of '73 and '74, in an epidemic form, and with its old-time fatality, excited great apprehension in the community, and much discussion in the profession. Eventually, as the disease extended in area and increased in severity, a meeting of this Society was called to consider the subject, and interchange views as to the means the best fitted to meet and repulse the enemy. At that meeting I had the honor to open the debate on the treatment. My opinions, markedly divergent from those expressed by others—opinions published as early as '63 in the *Boston Medical and Surgical Journal*—failed of acceptance, met with adverse criticism, and fell to the level of all clinical facts in the face of rational medicine. How preposterous for one man to pit a few empirical observations of his against doctrines settled as long ago as the days of Cullen! What! is the contest to be fought over again with a modern John Brown? Is the caution to avoid stimulants in fever and inflammation to be cast to the winds? It is contrary to reason and common sense. Such a practice, surely, would but add fuel to the flames. Moreover, the claim of nineteen recoveries in twenty consecutive cases, as reported in the Boston *Journal*, is easily explained: a physician often has a run of of mild cases, a fact notably observable in scarlatina.

The object of this paper is to present additional and more decisive clinical data, such as it will be difficult to explain away, or otherwise account for, than by conceding a direct and positive antagonism between alcohol and diphtheria. I am now prepared not only to repeat the assertion, formerly made to this Society, that a physician, when called early, ought not to lose more than one in twenty cases—but also to announce the still more startling fact that double, yea! quadruple that number has since then been, consecutively, brought to a successful issue. In fact, diphtheria is, when attacked boldly at the outset, more amenable to treatment than many common diseases; and yet the fatality under prevalent modes of practice is as great, almost, as that of unmodified small-pox.

I propose calling your attention to the subject before us this evening under the following heads:

1st. The pathology and treatment.
2d. The histories of typical cases.
3d. The reports of cases, and the certificates of deaths.
4th. The preventive cases.

THE PATHOLOGY AND TREATMENT.

My views on the pathology and treatment of diphtheria, inasmuch as they have hitherto been presented to the Society, I will simply recapitulate in an abstract form: Diphtheria first appeared in this country in the year 1858. Its essential features are totally distinct from those characterizing all previous throat-distempers. The remote cause of the diseases may be the multiplication of germs, animal or vegetable, on an abraded point in the fauces, and their transit thence through the lymphatics and blood-vessels to every part of the body. Its clinical history, however, better accords with the action of some subtle agency, which, pervading the air universally, impairs the vital status of the circulation through the lungs. In an epidemic all are affected by the morbific agent; but a few only yield to it. Mature, vigorous persons have vitality enough to resist the disease. Children and weak adults are its usual subjects.

To this general and predisposing cause there is, almost always, super-added a local and direct exciting cause, such as defective exercise, improper diet, dark rooms, damp houses, imperfect ventilation, and poisonous emana-

tions from decomposing filth in privies, cesspools, sewer pipes, etc. To such agencies the strongest constitution will soon succumb.

The blood being deteriorated, its crasis is impaired and its vitality lowered; and then tbe sympathetic nerves, failing to receive due stimulus, waver in their efforts to carry on the animal functions. Thus the main spring of life losss the tension that keeps the whole mechanism in motion.

The exudation is a symptom only, a sign of the degeneration of the blood and the semi-paralysis of the sympathetic nerves. The exudation may be slight, or even absent altogether, and yet the most serious sequellæ supervene.

All local treatment is worse than useless. It exhausts the nerve-force and induces greater injection of the blood-vessels, thus favoring the exudation.

Alcohol neutralizes the diphtheritic poison, sets free the nerves of animal life, subdues the fever and inflammation, destroys the pabulum that sustains the membrane, cuts short the disease, conquers its sequellæ, and shields other members of the family from an attack. Upon the subsidence of the fever, as is usually the case in from twenty-four to thirty-six hours, a purulent secretion begins to loosen the membrane, and soon, thereafter, to detach it in flaky, ragged fragments. This process may take place, and recovery be possible, even when the larynx and trachea are implicated. The membrane is seldom renewed when this secretion is maintained by a steady use of the remedy. Alcohol is as antagonistic to diphtheria as belladonna to opium, or quinia to malaria. Like any other antidote, it must be given promptly at the outset, as otherwise its potency will be lessened, perhaps lost altogether.

Alcohol does not act as a stimulant, nor induce any of its ordinary effects. Enough may be given to cause profound intoxication in health, and yet there exist no signs of excitement nor odor in the breath. Hence at a late stage of the disease it is of little avail.

Should the administration of alcohol anticipate grave symptoms by thirty-six hours, recovery is assured; should the epiglottis be implicated, a croupy cough present, or the blood much contaminated, recovery is possible; but should the larynx be involved so as to impede the aeration

of the blood, recovery is improbable, though, even then, the secretion of pus may detach, disintegrate and supplant the membrane.

All cases of croup, on the failure of the usual remedies to subdue the harsh, rasping cough, should have alcohol added to the treatment; all cases of scarlatina, on the appearance of a membranous patch in the fauces, should be considered as diphtheria; all diseases associated with diphtheria; inasmuch as its presence casts a baleful shadow over every other morbid condition, should be disregarded, or, at least, receive secondary attention only; all the sequelæ of diphtheria—paralysis, albuminuria, hemorrhage, anæmia, etc., etc.—should, whatever else might be demanded, be subjected to this all-potent remedy.

Quinia is an efficient ally to alcohol. It energizes the ganglionic nervous system—a member of the vital forces not less important than the vascular—and thus enables the organism to right itself and resume its functions.

Iron plays an unimportant part at first; but later, when the diphtheritic poison has been neutralized, it restores color to the blood, imparts force to the nerves, and awakens active nutrition—matters of no light moment in most cases. At an early day, even food and other means to support nature are of slender advantage; but when alcohol and quinine have tempered the violence of the symptoms, they are imperatively demanded.

The power of alcohol and quinine to prevent blood-degeneration and nerve-exhaustion, depends on fresh air, bodily rest, mental quietude, and disuse of lowering medicines. So, also, the power of iron and food to restore the fluids and solids to their normal standard, is only operative by observing the same general caution as to impure air, active exertion, and heroic treatment of individual conditions.

Alcohol and quinine have no greater power to cure than to prevent diphtheria, provided they are given promptly and continuously. With thorough ventilation they are all that is needed to purify a room or a house, unless there exists some extraneous source of infection, demanding special attention.

THE REPORTS OF CASES AND THE CERTIFICATES OF DEATH.

To further substantiate the virtues of alcohol in the treatment of diphtheria, I will appeal to the records of the

Health Board of this city. From the figures furnished me by two persons connected with this department, it appears:

In 1874 there were reported 1,651 cases of diphtheria; in 1875, 2,669 cases; and in 1876, 2,329 cases; making in all 6,649 cases.

During the same years respectively there were reported 580,865, and 810 deaths from diphtheria; and 318,451, and 412 deaths from croup, making the total mortality from diphtheria 2,355, from croup 1,181, and from diphtheria and croup 3,536.

Now, if it be assumed that all the cases reported as diphtheria were genuine, and that the majority of deaths from croup had a diphtheritic origin, as doubtless is true, then there will be slight grounds for congratulation over the progress made by therapeutics. The mortality is truly appalling. Even including the croupous, among the diptheritic cases, the exhibit is far from flattering.

From Jan. 10th, 1874, when I lost the young girl whose history is the first presented in this paper to this date, I have reported 78 cases of diphtheria, and lost one only. This even does not rightfully belong to the list, as the child had been under the care of a homeopathic physician several days. A younger child lay dead in the house when I was called. Besides, the patient refused all food and medicine, and died in 36 hours. An older child promptly recovered.

To these 78 cases should be added some eight cases, or more, which, from the slight local trouble or other cause, were not reported—but which, from the course of the disease, I am convinced, were really diphtheritic. Three of these cases, from the delay in resorting to brandy and quinine at the outset, required much longer treatment than usual. Thus it appears that, in a period of three and a half years, 85 cases of diphtheria have been treated successfully, without a failure. What is more, not a death appears under the head of croup, or other disease, the sequel of the diphtheritic poison.

The following report was also furnished me as to the number of deaths and their causes for the same period: Old age, 2; heart disease, 2; softening of the brain, 1; cancer, 1; apoplexy, 1; phthisis, 2; pneumonia, 1; congestion of lungs, 1; jaundice, 1; typhoid fever, 1; cerebro-spinal meningitis, 1; cystitis, 1; Bright's disease, 1;

puerperal fever, 1; diphtheria, 1; scarlatina, 1; cholera infantum, 5; marasmus, 2; convulsions, 2; chronic eczema, 1; hooping-cough, 1; and dentition, 2.

In this connection it may be well to examine the claims of tracheotomy as a forlorn hope. The point is, will it increase or lessen the chances of recovery? Dr. Pilcher's tables of operations in this city lead to the conclusion that twenty per cent. has been saved after the failure of medicine. If this be so, then surely no case should be given up until the aid of surgery has been invoked. Such aid having rarely or never appeared proper in my practice, I thought the grouping of diphtheria, croup, œdema glottidis, and largngitis under one head might involve a fallacy.

A New Method of Treating Fracture of the Clavicle.

By Henry Van Buren, M. D., Chicago.

I make the first bandage three or four inches wide out of unbleached cotton, of double thickness, and sufficient length. On one end of this bandage a loop is made, by returning the bandage on itself, and fastening the end with a few stitches. The hand on the injured side is then passed through this loop, and the loop carried up to a point just below the axillary margin. This bandage is then passed directly across the back, and under the sound arm and over the sound shoulder, and returned across the back, and pinned or stitched to itself at the point where the loop is formed.

The second bandage is then made and applied af follows:—

I flex the arm of the injured side and place the hand on the chest, pointing in the direction of the sound shoulder; I then take a piece of the same material as used in the first instance, and make a bandage four inches wide, of double thickness and sufficient length, and pin or stitch one end of this bandage to the lower margin of the first bandage, in front of the sound shoulder. It is then passed diagonally downward, and across the chest under the hand and forearm which has been flexed upon the chest, and carried around the arm at the elbow, and back on the dorsal surface of the forearm and hand to the point from which it started, and this end also pinned to the first bandage.

I then stitch the lower margins of this bandage together for a distance of about three inches at the elbow, thus forming a trough for the elbow to rest in. I also do the same at the upper end of this bandage, which forms another short trough for the hand to rest in.

This bandage or sling may be made as described above, before it is applied, and the elbow placed in the lower trough and the hand in the upper one; and the upper ends of the bandage pinned to the lower margin of the first bandage, at a point opposite the sound shoulder, as above indicated; indeed, I prefer this plan, because more convenient.

This sling serves the triple purpose of drawing the lower end of the arm forward and upward, and thus throwing the injured shoulder backward. It supports the forearm and hand in a comfortable and quiet position, and last, it prevents the first bandage from cording under the sound arm by its attachment to its lower margin.

To prevent the first bandage from producing excoriation in the axilla of the sound side, I usually cushion the bandage at this point by stitching on two or three extra thicknesses of the cotton cloth. The same may be done at the loop,—around the arm of the injured side, if necessary.—*Chicago Medical Journal.*

The Immediate Cure of Drunkenness.

The following article, from the *Lancet and Observer*, by Dr. Z. C. McElroy, a frequent contributor to the MEDICAL NEWS, we regard as highly interesting.

Often hearing persons remark of having become "turned against" this or that, which they had, at some previous time, been exceedingly fond of, it has occurred to us that by means of medication an *appetite* might be broken up; and this article of Dr. Z.'s, so far as it goes, is evidence to that effect. Unnatural appetites are undoubtedly produced by changes in structure brought about in the brain, and why, by treatment, might not these changes in structure be remedied, or counterbalanced by others.—ED. MED. NEWS.

The patient, P. B. A., was a lawyer, aged fifty-seven, married, had a grown-up family, had been a drinker for forty

years; had sacrificed home, property, business, health, and professional reputation to his appetite; had considerable abdominal dropsy at the time he was put under treatment. Dr. McElroy was visited by Dr. McKinley, formerly of St. Louis, who has followed the treatment of inebriates as a specialty for many years with great success. The patient was placed under Dr. McKinley's treatment, and the case was carefully watched by Dr. McElroy.

Treatment commenced Sunday evening, December 10, 1876. The patient was put to bed, and his clothing removed from the room. He was furnished a pint of good whisky, and told to take what he desired during the night.

December 11th, morning. Pint of whisky about gone; to have another pint of whisky. During the day he drank some coffee and had eaten some ham and bread; to have mush and milk for diet. Evening: Patient still in bed; to have all the whisky he desires during the night. Dr. McKinley gave him a drachm of Howard's hydro-sublimate of mercury (simply pure calomel), dry upon the tongue, washed down with a tumbler of whisky; patient to remain in one position in bed, so far as possible; pulse very feeble; eats very little.

December 12th, morning: Patient had three copious discharges from bowels during the night; pulse good, about one hundred, skin soft and moist, feels very comfortable. At six o'clock A. M. Dr. McKinley gave him a drachm of Squibb's powdered ipecac mixed with licorice, dropped dry on the tongue, washed down with whisky. To have all the whisky he wants during the day; mush and milk diet. Evening: Has had four more operations of the bowels. Dr. McKinley gave him two scruples of powdered ipecac in the same way as the other medicine had been given. At eleven o'clock P. M. Mr. A. was desperately sick at the stomach; thought he was dying; sent for his physician; more whisky ordered.

December 13th. He was very sick at the stomach and threw up some dark "bilious matter;" no more medicine that morning; Dr. McKinley pressed more whisky upon the patient. About ten A. M. he thought something had been put into the whisky to make him sick. A messenger was sent to his brother-in-law, who procured him a quart of the best whisky to be had, but he never tasted it. About one o'clock he requested his wife to remove

all liquor out of his bed-room, as he had turned against it. He has never tasted any since; his taste for it was entirely gone, and has never returned. Evening: He ate some milk and crackers after his stomach settled; has no nausea now; had twenty five grains of chloral in comp. spts. of lavender.

December 15, morning. Had eight hours sleep. Bowels continue to move, discharges more offensive; kidneys act, swelling of abdomen about the same, although there is more gas and less water. At six A. M. Dr. McKinley commenced giving him grain doses of ipecac every hour, dropped dry on the tongue; gave him no food; although slightly nauseated all the time he did not vomit; gave the last dose of ipecac at noon; to have hot milk and cracker when his stomach will receive it. Evening: Patient improving, pulse good, bowels moved several times, no medicine; next day, 15th, losing flesh rapidly, no medicine.

December 16th. Takes hourly doses of ipecac, with one grain calomel in each of the first three doses in the forenoon; bowels moved twice.

December 17th. Abdominal dropsy all gone; patient up and dressed and down stairs; appetite good; tongue nearly normal; commences to-day to take syrup of the iodide of iron, two ounces in six ounces simple syrup, to take a tablespoonful before each meal, and to return the same amount of water to the bottle after each dose; when it becomes tasteless, to commence with the common tincture of iron, two ounces in six of syrup, and take in the same way, keeping the bottle always full by adding water after each dose.

His recovery was complete, and there has been *no return of his appetite for alcoholic drinks.*

Dr. McElroy's conclusion from this case, and many others reported by Dr. McKinley, are as follows:

"First, That Medicine offers the confirmed inebriate relief from the trammels of appetite, with as much certainty as relief from any other pathological condition.

"Second, That what is done by specialists in the treatment of chronic drunkenness can and should be done equally well by the profession at large.

"Third, That reformation by the aid of medicine has a solid and real foundation in changes of structure on

which appetite depends, which purely moral reformations lack, and are, therefore, less permanent."

Force and its Transmutations.

Modern science has shown conclusively that force is nowhere *produced*, however many and protean may be the forms in which it appears. So far as our present knowledge extends, the amount of force in the universe is a fixed quantity, which can be neither increased nor diminished. In loose every-day language we speak of the gain of power by the use of machines, but in reality no such gain is possible. What seems like it is nothing but the exchange of power for its exact equivalent, an apparent gain in force being paid for a by a proportionate loss in speed, or *vice versa*. If a pound lifts ten pounds it must move through tenfold the distance, or the account must be balanced in some other way. Machines are mere conveniences for the application of power, whether it be that of our own muscles or be drawn from the immense supply of force which Nature places at our command. By their aid we compel the winds and the waters to labor for us, and make the fire and the lightning our servitors. The Arabian fable of the lamp of Aladdin becomes a familiar fact, and genii mightier and more beneficent than Oriental fancy ever dreamed of perform at our bidding miracles of strength and skill beyond the most extravagant feats recounted in the tales of Scheherezade.

When force seems to be produced it is only because it has been imprisoned, like the genii in the leaden casket, and is now set free. Thus water and coal are inert substances, and apparently incapable of exerting any force; but set the coal on fire and convert the water into steam, and we get an expansive power in the heated vapor which gives our engines their gigantic energies, concentrating the strength of a thousand men in one little piece of mechanism.

But where does the force come from in this case? Was it really imprisoned in the water or in the coal, as the figure we used might imply? Some one will say that it consists in the *heat* which gives the vapor its expansive energy. But whence does the heat come? You answer

again that it is from the burning of the coal, which is nothing more than the chemical combination of the carbon with the oxygen of the air. Here a new force comes in, which we know as *affinity*, or chemical attraction. A mighty force it is, indeed, which draws the atoms of carbon and oxygen together with such inconceivable velocity that their collision gives rise to the heat, as iron grows hot under repeated blows of a hammer. Out of the clashing of countless particles infinitesimally minute, acted upon by this intense form of attraction, is borne all that fervid force which is the life of the steam-engine.

What a tremendous source of power this affinity is we scarcely appreciate until we actually measure it, and find that the heat given out by a pound of coal in combining with oxygen is sufficient, when converted into mechanical motion, to raise more than a million pounds through a distance of one foot, or to hurl a ton nearly to the height of a mile. The burning of about three hundred pounds of coal represents the hard labor of an able-bodied man for a whole year.

In a certain sense, then, we may say that the force was imprisoned in the coal. To obtain the force we must have carbon in an elementary state for the oxygen to combine with. After the diverse atoms have rushed together we can get no more heat from the affinity that unites them as carbonic acid,—unless, indeed, we can tear them from their hold upon each other, and let them clash again. But to separate them would evidently require a greater force than was exerted in their combination and now binds them together.

Where shall we find the agent potent enough to accomplish this divorce of the atoms after affinity has once united them? Not in the thunder nor in the whirlwind, not in any fierce and violent exercise of elemental forces, but in an agency that reminds us rather of the "still small voice" that announced to the waiting prophet the coming of the Almighty. The sunbeam falling on a leaf is the silent but irresistible power that undoes the work of affinity, and bids the burnt carbon rise phœnix-like from its ashes to resume its elementary form. Every leaf that flutters in the summer air and absorbs the sunbeams is a chemical laboratory in which this marvelous decomposition of carbonic acid is going on all day long, the oxygen being poured forth into the air and the carbon

packed away in the tissues of the plant. From
house it may eventually be taken and burned by man, serving him anew as a source of heat and force; and this series of transformations may be repeated again and again.

But where did the coal in the mine come from? From the leaf and the sunbeam, precisely like the wood we burn upon the hearth. Uncounted ages before man lived on this earth, a strange luxuriant vegetation flourished upon its surface, absorbing the carbonic acid and the sunlight as plants do to-day; and the coal-beds that supply us with fuel are the buried remains of that pre-Adamite growth. When we sit in winter before the coal fire glowing in the parlor grate, we are virtually basking in the sunlight that fell upon our planet millions upon millions of years before the creation of man. The light and heat of that sunshine were caught and imprisoned by the leaf, and have been locked up in the plant through its life and death and long entombment in the earth. The steam-engine is a modern machine, but the source of its power is incalculably more ancient than the origin of the human race. The fuel that heats its boilers was fabricated by the subtle fingers of the sunbeam in the delicate cells of the leaf when this world of ours was young and as yet unfitted for the abode of man. The engine is a piece of human design, the result of intellect working out a premeditated end. Was not the preparation of the coal a part of a Divine plan, the work of a Supreme Mind carrying out a benevolent purpose? Shall we believe that coal and mind and engine are only steps in an "evolution" effected by the action of blind material forces, unguided by intellect and will; or shall we see beyond and above those forces an infinite wisdom, power, and love, contriving, conducting, and inspiring all?

We have sketched but a single chapter, so to speak, in the history of the transmutation of force; and it is only a restatement of what was already known to many who may read it. But there are many others to whom these grand generalizations of modern science are not so familiar, and to whom this brief and simple presentation thereof may not be unacceptable or unprofitable. Indeed, they are wonderful enough to bear being oft repeated, even to those who are not ignorant of them.

Vaseline and Salicylic Acid in Obstetrics.

In a recent number of the *Medical Record* I called attention to the use of vaseline and salicylic acid in the healing of wounds; in the present I propose briefly to mention some of the various uses for which this compound seems adapted. Vaseline is a hydrocarbon, made from petroleum by simple evaporation and clarification. It is very cheap, being worth only some forty to fifty cents a pound. It has no taste or smell. Its role as a protective against the action of the air is extensive, as in burns, excoriations, etc. It is one of the best of lubricants. Its use is simple, and especially in complicated labors is thus very advantageous. Internally, it seems to relieve irritation of the mucous membrane, and, when taken up by the system, though it undergoes no proper digestion, to act much in the same way as cod-liver oil. As a vehicle for more active agents, it is more generally useful than any other oil-like compound. Salicylic acid has of late come into vogue, and is now used for a great variety of purposes—principally as an antiseptic, to reduce the heat of the body, and in diseases in which there is a morbid material in the blood, as in rheumatism, and gout, etc. It is not expensive, costing from thirty to forty cents an ounce. I have tried several samples of different manufacture, and find that of Rossengarten, of Philadelphia, by far the best, while the German article that I have used has proved caustic and utterly unfit for many purposes. The American acid is in silky, white crystals, like quinine, has no caustic taste, and, mixed with vaseline, makes a homogenous ointment. The German is amorphous, looks like chalk, has a slight pinkish color and caustic taste, and, mixed with vaseline, makes a lumpy, irritating ointment, unfit for use.

With these few preliminary remarks, I will now briefly notice some of the many uses of these two valuable agents; and first as to their use in obstetrics. It has been my practice for some time back to use vaseline, with a grain or more of salicylic acid to the ounce, and scented with a drop of ottar of roses, in all vaginal examinations, instead of oil or soap. I believe I thereby more certainly avoid carrying infection from case to case that I should otherwise do. In first confinements it may be used in the

first state of the labor, so soon as the woman takes to bed. I make use of a glass syringe, an inch in diameter, without a nozzle. With an instrument of this kind an ounce or more of the semi-solid vaseline can be introduced up to the os, where it remains at the temperature of the body, in a semi-solid state. I use it in this way as a simple lubricant, and without the addition of the acid. If desirable, in certain cases, it can be combined with the extract of belladonna, and, after the labor is completed, with the extract of ergot, or, in case of hemorrhage, with the liq. ferri persulphatis, with all of which it mixes well. If it is desired to introduce it into the uterus, it can be rendered fluid by putting the bottle containing it into water of a temperature of 100° F., when it can be used with the ordinary uterine syringe. In the course of a labor I use three to six ounces, with the effect, as I claim, of shortening the first stage of labor and rendering the parts, especially in first labors, easily dilatable in the second stage, while, after the placenta is delivered, a small quantity of the vaseline, with the acid added, disinfects the discharges, and does much, it seems to me, to prevent purulent absorption. Indeed, if puerperal fever was prevalent, I should not hesitate to introduce it freely into the uterus immediately after confinement. To illustrate the healing qualities of this combination, I some time ago had an extensive rupture of the perineum in a primipara, due to an unusually large child and to an unyielding perineum. I passed two pins through the lips of the wound and a figure-of-eight around each, and directed the patient to introduce a little of the vaseline ointment two or three times a day on her finger. On the third day after, when I next saw her, on removing the pins I found the wound entirely healed. My cases are not sufficient to base positive conclusions on, but I am inclined to think that an hour or more can be saved in an ordinary labor by the use of the vaseline, and that the second stage will go on easier owing to a more thorough relaxation of the soft parts, and to the avoidance of unnecessary friction; and that its use, with the acid after labor, will do much to prevent puerperal absorption, and, in any event, will conduce to the comfort of the patient. In dilating the os with the sponge tent, I find that by coating it with the vaseline and the acid, (ten grains to the ounce), I can more readily introduce it, the tent not

expanding at first, owing to the coating of vaseline; but, if held for a moment or two in place, it will remain without danger of its coming away, and will expand to the same limits that it would have done without the coating of vaseline, as can easily be proved by putting two tents in water, one coated and the other not. In erosions of the os, after the engorgement of the parts is removed by glycerine pads, the vaseline and acid ointment, applied on cotton-wool, will do much to effect a speedy cure, especially if alternated with the glycerine. There is one use for this ointment that I have not fully worked out. Physicians are frequently applied to, to produce abortion. Recently, on the same day, two women came to me; the reason assigned in the one case was that the husband was syphilitic; in the other that pregnancy brought on violent attacks of spasmodic asthma. Of course I explained that the child had rights as well as the mother, but it was all that I could do to prevent one of these cases from going to a professed abortionist. In some cases of this kind prevention is better than cure, and I am inclined to think, from some experiments, that vaseline, charged with four to five grians of salicylic acid, will destroy spermatozoa, without injury to the uterus or vagina.

In conclusion, there are a number of uses for vaseline in the lying-in room and nursery. I make no claim to its being a "cure-all," but it is a great convenience, and its "role" is extensive. The ointment makes a good dressing for the umbilical cord. Vaseline answers better than oil or soap to remove the cerumen from the newly-born infant. Mixed with an equal weight of honey and ten grains of borax or of chlorate of potassa to the ounce, it answers an excellent purpose in case of thrush. The ointment alone, or mixed with ten grains of quinine to the ounce quickly removes the small worms that frequently infest the anus of young children. In the excoriations of infants it effects rapid healing. In the not uncommon sore eyes of the first few days of life the vaseline alone introduced within the eyelids, effects a cure in a day or two. Again, in the "snuffles" of the old women, which, by preventing nursing, frequently seriously affect the health of the infant, it, when introduced into the nostrils with a camel's-hair pencil, answers better than anything I have as yet tried, especially if the head is kept warm with a flannel cap. There are many

other uses for vaseline, alone or combined with varying proportions of salicylic acid, that the experience of the physician will readily suggest to him in this connection. There yet remains to be considered some of the uses of these agents in other departments of medicine, which in a future number of this journal, I will briefly refer to.—*Dr. Dubois, Med. Record.*

Phymosis and Adherent Prepuce.

Battleboro, N. C., August 2d, 1877.

EDITORS MARYLAND MED. JOUR.

Dear Sirs—Of a number of cases of reflex paralysis, upon which I have performed circumcision, I desire to present for publication the report of the following case:

In June, 1875, I was desired to see John A., age seven years, living in my adjoining county. From his mother I learned the following history of the case: That he was healthy and growthy until the fall of 1872, at which time he began having convulsions, and continued to have several each day without seemingly to impair his health, until the latter part of the summer of 1874. Then he began to tumble down very frequently and grow more and more clumsy, until finally he became generally paralyzed.

I found him unable to move hand or foot, nor could he articulate a word; his expression was somewhat idiotic, bowels constipated, and had been as long as ten days without an action, even after taking several doses of castor oil. At times suffered with retention of urine; very restless and slept little. While I was examining his abdomen my hand accidentally touched his penis; the organ immediately became erected, and the boy instantaneously had a convulsion. After few inhalations of chloroform the spasm passed of. Soon as he aroused, which was after about twenty minutes, I thought I would again try and see if by irritating the penis it would cause another fit; at once he became convulsed. His mother told me that invariably at the time he had a fit his penis would become erected, and that she had known him to have as many as sixteen in twenty-four hours. I soon satisfied myself that the boy's paralysis was from reflex irritation caused by phymosis and adherent prepuce. I

circumcised him at once. and tore the adherent mucous membrane from the glands with thumb and finger nail of each hand in the manner suggested by Prof. Sayre, of New York. Behind the corona was impacted sebaceous material. After cleaning the gland thoroughly it was kept dressed with cold water. I gave him no medicines, and in two days I went to see him, and to my great surprise I found my patient sitting up in a chair, with more intelligent countenance, bowels had moved regularly, had voided urine freely, slept tolerably well the night after the operation, and very soundly the second night, and had had only one convulsion. Five days afterwards I visited him again, found that he could walk across the room, had no convulsion, and bid fair to make a rapid and complete recovery. Electricity was applied and gave him pyrophosphate ferri, and tr. nux vomica.

He was brought to my office some two weeks afterwards greatly improved in every respect. Same treatment continued with counter irritation over the spine.

I am satisfied that many of the cases of irritable children with restless sleep and bad digestion, which are often attributed to other causes, are entirely dependent to the irritation of the nervous system, caused by an adherent or constricted prepuce. I think the profession is greatly indebted to Prof. Sayre for his valuable papers upon this subject. Very truly, yours,

W. H. Whitehead, M. D.

Therapeutics of Tetanus.

An anonymous writer to the *Practitioner* for August gives an interesting retrospect of the medical treatment of tetanus, from which we extract the following notes:—*Chloroform* has had an extensive trial; it has been administered in large quantities, sometimes with apparent success. Simpson narcotized a child for thirteen consecutive days, using ℥100 with mercury. But the general result is that while all the fatal symptoms disappear on the inhalation of chloroform, they return on its removal with unabated violence, and the disease generally lands them to its fatal conclusion without delay. *Chloral hydrate* has how taken the place of chloroform in the

treatment of tetanus, but without more success. There appears to be great tolerance of the drug, and a case is quoted of a child of 12½ years who took more than 100gr. a day. Dr. Ballantyne, of Dalkeith, gave ℥iij. in twenty-four hours, and ℥vj. in five weeks, with success, the patient being easily aroused to speak. It seems, however, to be a valuable drug in alleviating the symptoms. Its injection into the veins and its subcutaneous injection have not been so successful. *Calabar bean*, which, like chloral, affects the spinal chord, and has little or no action on the motor and sensory nerves, has been recently much employed. As with other drugs, its administration has been at one time apparently successful, and at another a perfect failure. It has, moreover, to be given in comparatively large doses. The spasms are controlled and the body heat sinks, and if the drug be withheld the paroxysms return, while if it be pressed the patient comes into a somewhat dangerous condition. A large dose is required to produce, by subcutaneous injection, contraction of the pupil, sometimes as much as ⅓gr. every two hours. There is not much to be said in favor of either *opium* alone, or opium combined with chloral; while *nitrate of amyl*, *bromide of potassium*, and *conium* have been alike tried in vain. A more favorable report is given of *aconite*, the exhibition of which has been attended in some cases with remarkable results. It lowered the pulse, which fell in one case from 135 to 60, with a simultaneous decrease of the convulsions; but the effects of the drug constitute in themselves a new danger which must be carefully controlled. Tendency to syncope, wakefullness, vertigo, dilatation, and insensibility of the pupil; small, intermittent, and irregular pulse, and increased irritability of the nervous system, are often the result of giving this remedy. The writer of the article referred to believes that such a summary as he has given makes an appeal to pathology to throw fresh light upon this disease, and he hopes that some combination of these agents will be able to accomplish what each one of them singly has been found unable to accomplish.

We have no doubt that we shall one day find a remedy that is as really successful in the treatment of tetanus as the bromide of potassium has been found to be in some forms of epilepsy; but just as we are not indebted to pathology for the discovery of the therapeutic virtues of

the bromide in epilepsy, so we are far from being sanguine that pathology will point out by-and-by the drug or combination of drugs which will cure the disease under consideration. In all probability the chemist or the botanist has already provided the remedy; and perhaps it remains for empirical experiment, rather than for physiology or pathology, to find it out.—*Dublin Medical Press.*

Microscopy.

Dunkirk (New York) Microscopical Society.

Regular meeting held Oct. 12th 1877, the President, Dr. Geo. E. Blackham, in the chair, and a large attendance of members and visitors.

This being the first regular meeting since the summer vacation, a good deal of routine business was transacted in the business session.

At the scientific session Lieut. W. L. Carpenter, U. S. A., late of the Hayden and Wheeler Surveys of the Territories, gave a brief but interesting lecture "On the Use of Curare in the Study of Biology." His remarks were illustrated by the injection of a few drops of the dilute solution of this poison beneath the skin of a male frog, producing complete paralysis of the voluntary muscles. By a careful dissection the intestine was drawn out, and the circulation of the blood in the small vessels of the mesentery was well shown on the President's Tolles' stand with his Tolles' one inch objective, and the B (one inch) Huyghenian, and the ½ inch and ¼ inch solid eye-pieces, the powers being respectively 100, 200, and 400 diameters. Under the latter power the individual corpuscles were beautifully defined.

Among the new instruments and apparatus exhibited was Zentmayer's new histological microscope stand, by Lieut. W. L. Carpenter, U. S. A. This is a most compact, convenient, and beautifully finished little stand, having several new points of excellence. The mirror bar being pivoted in plane of the object, and carrying a sub-stage, or accessory carrier, the distance of which from the object can be varied to focus a condenser; the mirror and sub-

stage can be swung ABOVE the stage, and used for the illumination of opaque objects. A Tolles' large microscope stand, B, with one inch Huyghenian, and $\frac{1}{2}$ and $\frac{1}{4}$ inch solid eye-pieces, and Wenham reflex illuminator, by the President. The firmness, solidity, convenience and perfect workmanship of this splendid stand were much admired. A cheap $\frac{1}{5}$ dry objective, by Tolles, price $15, which resolves clearly *pleurosigma angulatum* by *central* light, also by the Preiident.

After a time spent in the examination of objects, and a discussion of Lieut. Carpenter's remarks, the society adjourned.

The following additions were made to the library and cabinet, by donation and subscription: The *Science Observer*, Boston, Mass., for Aug. and Sept.; ten pamphlets relative to the display made by the U. S. A. Medical Department at the Centennial Exhibition; *Journal de Micrographie*, Paris, France; report on the Rocky Mountain locust and other insects injurious to vegetation, by Dr. Packard; the Cincinnati MEDICAL NEWS for July, August and Sept.; a series of drawings of typical forms of diatoms; Foramineferous earth; a number of specimens of the image and the empty larva cases of the so-called seventeen-year locust (*cicada septendecim*).

C. P. ALLING, M. D., *Secretary.*

San Francisco Microscopical Society.

The Secretary announced the following acquisitions: *American Naturalist*, *Monthly Microscopical Journal*, Cincinnati MEDICAL NEWS, and *American Journal of Microscopy*, for August and September; *The Popular Science Monthly*, with Supplement, for September and October; *Nature*, for July and August; *Journal Quekett Microscopical Club* for July; part 2, vol. 2, *Bulletin Bussey Institution* and *Journal de Micrographie*, Pellatin—all by subscription.

Dr. S. M. Mouser donated to the Cabinet a slide mounted by him, with a stained section of frog's stomach, showing the *villi* and cell structure; and Mr. J. R. Scupham handed in samples of silicious and micacious earths, from Gold Hill, Nevada. Quite an extensive series of diatomaceous earths were presented by the California

State Geological Society, obtained by that young but energetic scientific organization from Monterey, Santa Barbara, Ventura, near Virginia City, ten miles north of Petaluma, and Nottingham, Maryland. Most of these fossil deposits have never been unearthed before, and consequently the members were desirous to know of the characteristic diatoms to be found in them, to which end the Corresponding Secretary was instructed to request Dr. A. M. Edwards, one of their members, to examine the samples and report as soon as practicable, trusting some of them might prove as fruitful as the Santa Monica deposit.

The second installment, being Century I. of Prof. H. L. Smith's reliable series of typical diatoms, had come to hand, and were warmly welcomed by all present, particularly those who love to study and become familiar with the correct nomenclature of the silicious shelled little beauties. The mode of arranging them in book-like rack boxes is a great improvement over tne former method adopted by Prof. Smith, and yet a late letter to Mr. Kinne contains the information of something better still in this direction, as well as the discovery of a new method of mounting dry preparations so they will not spoil, (as unfortunately all those with asphalte rings are liable to do), nor the covers become dislodged by any blows or falling.

Mr. H. F. Attwood, of Chicago, sent the members of the Society' through Mr. Kinne, several slides of diatoms obtained from the water supply of his city, and which he stated have recently been receiving considerable attention from a Prof. Piper there, who, like many others, seems to mistake notoriety for fame, and proceeds to fright the soul of the average Chicagoan who takes his water straight, by badly executed drawings of diatoms and other fresh water microscopic plants. Some of the Professor's terrible monsters of the deep were at once recognized as Diatoma vulgare, Stephanodiscus, Niagara, Cyclotella operculrta, Asterionella, formosa, Fragilaria, etc., species, which are as particular about their water supplyas any one need be.

COORONGITE.

Philadelphia, September 21st, 1877.

Prof. C. L. Anderson, Santa Cruz, California;

Dear Sir—I hope the second slide of coorongite arrived safely. I have several times seen notices of parties

in California who had brought coorongite to the notice of the San Francisco Microscopical Society, and lately saw a slide of a section of it from some one in California. I think whoever has it has gotten a little mixed, and would like to enter into correspondence with him about it in order that I may either be set right myself or show him his error. My attention was first attracted to it during the Centennial; not as a diatomaceous material, but as an oil of paraffine shale, and I made the acquaintance of the Commissioner for the purpose of examining it, and have since had a correspondence with the exhibitor, Mr. Stewart. There were two substances exhibited by this gentleman, both hydro-carbons; one he exhibited as mineral caoutchouc; this material was gathered in sheets from one-fourth to one half inch in thickness; has the appearance of brown India-rubber, but contains 90 per cent. hydro-carbons, and has also has imbedded in it some few diatoms. What was exhibited here as coorongite, and also what was sent to me by Mr. Stewart, under the same name, is a grey sort of shale, of very recent formation, a very minute piece of which I send you, as I have very little of it. This only contains about 20 per cent hydro-carbons. The two materials, Mr. Stewart tells me, are found in the same district—a sink-hole of some extent, from which there is no outlet until the water rises to some height. During the rainy season this hole fills up, and during the dry season they gather some tons of each material, which they find on the elevations in the sink hole; but the two are never found together—*i. e.*, mingled together—the caoutchouc being found on a higher level than the coorongite. I think there is less than one per cent. of diatomaceous matter in the caoutchouc, while in the coorongite there is, I think, about 75 per cent. I think the material called coorongite, by this gentlemen in California, is the caoutchouc of Mr. Stewart. Can you get me a slide of this material, or forward this letter to the parties there who have it, as I should like to enter into correspondence with them about it in order to set the matter right among us? I have had the best success in preparing this coorongite, by boiling it in chromic acid, or putting it in a test tube with a saturated solution of bi-chromate of potassæ, heating to 130°, and then carefully adding five times the bulk of sulphuric acid. It has to be repeated several times. Yours, very respectfully,

GALLOWAY C. MORRIS.

Measurement of Blood Corpuscles.—We take the following paragraph from a paper on "Microscopy of the Blood," read before the International Medical Congress, held last year in Philadelphia, by Dr. Christopher Johnston, of Baltimore:

"More germane to our subject is an expression of opinion as to the degree of amplification requisite for exhaustive and conclusive study of the blood; and at once the microscopist is struck with the necessity for the employment of high powers for all research excepting only what might be called a general view of the field. For enumeration of the corpuscles a medium power suffices; for acquiring a collective idea of blood, either in the vessels, or freshly drawn, placed on a slide, and subjected to changes of temperature and the action of reagents, moderate amplification offers the best hope; but for higher views, higher objectives must be put to use, and an immersion $\frac{1}{16}$, $\frac{1}{30}$, $\frac{1}{50}$, or even $\frac{1}{75}$ inch objective, of the best maker, and of large angle, in the hands of a really good manipulator, will afford a demonstration of all that is at present attainable. If size alone be in question, it is unscientific to hope to distinguish, under low powers, human red corpuscles with an average diameter of $\frac{1}{3230}$ of an inch from those of the dog, with an average measurement of $\frac{1}{3576}$ of an inch; and it is worse than unscientific to obtain large images by forcing low objectives with short eye-pieces. We hold, therefore, that, with the results of mensuration of the blood-corpuscles, all the conditions attending the measurements must be given, if their authors expect to win and maintain the confidence of the world of science."

We do not know as we altogether understand what Dr. Johnston means by the statement that "it is worse than unscientific to obtain large images by forcing low objectives with short eye-pieces." He himself certainly employs short eye-pieces and draws out his draw-tube; but in doing so, from his declaration, he does what is "worse than unscientific." We hold, however, that it is perfectly proper and scientific to obtain as large an amplification that an objective will admit of, if we desire it. If this should not be the case, a compound microscope is not a scientific instrument, and we should make use of only the simple one; for its advantage consists in enabling us to obtain large images by amplifying the magnified image of an

object. This is the *primary* object of the compound microscope; and being so, it is *scientific* to obtain from any lens, let it be high or low, as large an image consistent with clearness and definition that we can by short eyepieces, amplifying, and extending the draw-tube. If a Gundlach's, Wales', or Tolles' $\frac{1}{10}$th immersion will permit of an enlarged image to 3000 diameters, or more, it is not unscientific to make use of it. It is our experience that a high angled quarter, well corrected, will give all the amplification necessary to compare the sizes of blood-corpuscles of different diameters; and that such high powers as $\frac{1}{20}$ths, $\frac{1}{50}$ths, and $\frac{1}{75}$ths, are never needed for *any purposes*.—Ed.

Keith's Heliostat.—This instrument is made from a design by Prof. Keith, formerly of the U. S. Navy, and is similar in principle to the expensive instrument of Foucault, and for most purposes every way equal to it in efficiency. It is rendered exceedingly simple in use and construction by several devices which will be patented.

It enables the microscopist who has a sunny window and a time piece, at any time, in a few minutes, to bring a sunbeam upon the object in his microscope and keep it there for several hours of study or amusement, and to obtain results which can be as easily and cheaply obtained in no other way.

It enables the photographer to copy, with the aid of the blue cell, any object in the microscope, or any object requiring the same sort of illumination.

It enables the physicist or experimenter with sunlight, to study, without interruption, any subject for which he requires that light in a constant direction. It is sold by Mr. E. Kubel, of Washington, D. C.

Gleanings.

Carbolic Acid Spray in Catarrhal Diseases of the Respiratory Organs.—Dr. Moritz, in a communication to the Medical Society at St. Petersburg, (*St. Petersburg Medicin Wochenschrift*, November 11, 1876,) states that during the spring of last year he used carbolic acid spray with benefit in catarrhal diseases of the respiratory organs.

Having had much to do with carbolic acid, and especially the spray, he noticed that the bronchial catarrh with which he was frequently troubled did not occur, or that, if it began, it was soon arrested. A colleague of his, Dr. Assendelfft, made the same observation. Dr. Moritz used the spray of a two per cent. solution of carbolic acid. He first tried it on two children in whom the commencement of hooping cough was suspected. After the remedy had been used two days, the slight catarrh which was present came to a stand still, and in a few days disappeared. In several children with measles, the cough was diminished, and the nights were more quiet after the use of the carbolic acid spray. In two surgical patients also, whose lungs were in a suspicious state, the cough entirely disappeared during the frequent use of the spray. On the other hand, it was ill borne by two phthisical patients, one of whom had extensive cavities in the lungs. He explains the action of carbolic acid by supposing that many cases of catarrh are, during a certain stage of infection, perhaps parasitic in nature. In the discussion on the paper, Dr. Von Mayer said that, if bronchial catarrh were infectious, this must be explained rather on chemical grounds. Dr. Wulff thought that many cases of catarrh might to some extent be parasitic. Dr. Lehwess had found solution of carbolic acid very useful in cough, in the form both of inhalation and of injection. Dr. Masing had found excellent results from the carbolized spray in a very obstinate case of hooping cough of three months' duration. Dr. Schmitz had remarked the cessation of the attacks of bronchial catarrh, to which he had been liable, since he had had much to do with the carbolic acid spray.

At the Brompton Hospital some very interesting experiments are being made with the salicylate of soda in the treatment of phthisis. This salt is given in scruple doses every five or six hours. One of the most marked results was the uniform reduction of temperature. While this fact is interesting, and should induce a general trial of the salt, the results are not yet such as to justify any positive confidence.—*Canada Lancet*, June.

Administration of Salicylic Acid.—M. A. Casson proposes (*Bull Gen. de Therap.*, April 30), the employment of citrate of ammonia as a means of facilitating the solution of salicylic acid. Half a drachm of salicylic acid

dissolves readily in less than four ounces of water (120 grammes), if 37 or 45 grains of citrate of ammonia are added. M. Casson gives the following formula:—For a solution—salicylic acid, ʒi; citrate of ammonia, ʒss; rum or brandy, ℥i; distilled water, ℥v. A tablespoonful of this solution will contain from 4 to 4½ grains of salicylic acid. The citrate of ammonia is easily prepared by saturating ammonia in a solution of citric acid.—*Dublin Jour. of Med. Science.*

Subcutaneous Injection of Ether in Collapse.—(*Jl. de Med. et. de Chir. Prat.*, March, 1877. *Lon. Med. Record*, April 15, 1877.) M. Vermeuil at La Picte, has employed with success in several cases of collapse, the subcutaneous injection of ether. With regard to the method of using it, M. Vermeuil advises the surgeon to go about it with the thermometer in one hand and syringe in the other. He might commence by giving fifteen drops, and repeat it in an hour, taking care to ascertain the temperature. If this be not sufficient, the injection may be made as many times as is necessary, the ether being apparently well borne.—*Detroit Med, Jour.*

Simple Means to Lessen the Pain of a Blister.—(*Lyon Medicale—The Clinic*, February 10, 1877).—M. Ernest Besnier proposes the following plan: Apply the blisters early in the morning; these, properly prepared, covered with a leaf of oiled Joseph paper, will cause very little pain, and never produce the sometimes grave and always painful vesical and renal symptoms, provided that the blisters are removed after five or six hours, at most, or soon as the epidermis commences to lift itself lightly and partially, which one can easily tell by the ivory colored and wrinkled appearance of the skin. Now cover the latter with blotting paper, saturated with cerate or cold cream. Vesication then continues, almost painless, and the blister is almost as large as if the application of the cantharides had been continued.

Case of Gastrotomy.—M. Koeberle, of Strasburg, has communicated to the Societe de Chirurgie (*Gaz. des Hop.*) a case of irreducible retroversion of the uterus, which, by compression of the intestine, induced a complete arrest of fecal matters, accompanied by the ordinary symptoms of intestinal obstruction. Gastrotomy was successfully performed, the uterus being adjusted by

passing the finger through the aperture in the abdomen, after which all accidents ceased. Profiting by the aperture, the surgeon fixed one of the ligaments within the wound, with the intention of fixing the uterus to the wall of the abdomen, and in this way effected a radical cure. He sacrificed a healthy ovary, but he would not have proceeded thus had not an opening been made in the abdomen for an operation that was absolutely necessary. He utterly discountenanced any operation of this kind undertaken expressly for the reposition of a retroverted uterus.

Removal of Ovaries.—Dr. E. H. Trenholme relates (*Obstetrical Journal of Great Britain and Ireland*), two cases of ovariotomy, or spaying. In the first case he removed both ovaries through an incision in the abdominal wall, between the umbilicus and pubes, five inches long. His reason for doing so was the presence of an interstitial fibroid in the uterus, which was wearing out the patient by pain and hemorrhage. His theory was, that by the removal of the ovaries the patient would be made forty-five instead of thirty-two, and that the tumor would disappear in the way these tumors often do at the change of life. The patient recovered perfectly, and is in good health. In the second case he removed the left ovary from a woman twenty-eight years old, suffering from dyspareunia and chronic oophoritis, with the result only of relieving the dyspareunia. The ovary was removed through an incision in the posterior wall of the vagina.

Viburnum Prunifolium.—Dr. Jenks, of Detroit, *Clin. Record*, advises half a drachm to a drachm of the fluid extract, every two or three hours, during the menstrual period, as a remedy for dysmenorrhea. He also advises it to prevent abortion, when the symptoms present indicate danger of the expulsion of the embryo.

Death of Samuel Warren.—The decease of the author of the "Diary of a Late Physician" can not be allowed to pass without regretful remark. Mr. Samuel Warren was made Master in Lunacy in 1850, and has not of late years been much before the reading public. His last considerable work was a novel—"Ten Thousand a Year" but it is by the "Diary" he will be remembered. When a student of medicine at Edinburg University, nearly half a century ago, Mr. Warren obtained that acquaintance

with the more personal aspects of our profession which he evinced throughout the series of papers in *Blackwood*, afterwards published in the "Diary." It is impossible not to lament the loss of one who will live in memory as a rare exemplar of the art which produces pictures in words.—*Lancet.*

ATTENDANCE AT THE GERMAN MEDICAL SCHOOLS.—The number of students attending the various schools during the years 1876–77, was as follows: Berlin, 281; Greifswald, 222; Leipzig, 361; Gottingen, 122; Breslau, 177; Konigsberg, 126; Bonn, 118; Erlangen, 121; Wurzburg, 491; Innsbruck, 62; Graz, 161; Krakau, 181; Prague, 326; Pest, 600; at the same time Vienna had 906, among whom were 54 American, 8 Brazilians, 4 Turks, 1 Dane, 38 Prussians, 20 Englshmen, 2 Frenchmen, 12 Grecians, 2 Irishmen, 5 Norwegians, 8 Russians, 7 Scotchmen, and 18 Swiss.—*Wiener Med. Presse*, July 22, 1877.

THE FORMATION OF CORROSIVE SUBLIMATE IN THE SYSTEM (*The American Practitioner*, August, 1877).—It has recently been asserted that calomel in powder mixed with powdered white sugar or magnesia, forms in twenty-four hours, a corrosive sublimate. According to the *Osservatore Med. Sic.*, Nos. 1 and 2, 1877, Dr. Polk has observed all the effects of poisoning by corrosive sublimate produced by the administration of calomel and sugar prepared for a month. The examination of the remainder established the presence of a notable quantity of the bichloride of mercury. The same fact is stated in the *Journ. de Pharm. et de Chem. de Turin*, November, 1875, where pastilles were used. The pastilles contained sugar, which acted on the calomel and transformed it into the bichloride. On the other hand, Carlo Bernadi, pharmacian, Milan, has made numerous experiments, and concluded that the poisoning was not due to the formation of corrosive sublimate, but to the impurity of the calomel employed. Further experiments are necessary to settle this point, and they will not certainly be very difficult. Calomel, fortunately, may be given in various other ways, as by simple putting on the tongue without any mixture.—*Phila. Med. Times.*

CAPSICUM IN ALCOHOLISM.—Dr. C. A. Owens (*Lancet*) finds capsicum very useful in alcohlism. He uses it in

combination with nux vomica and dilute nitrohydrochloric acid, in an infusion of gentian. The tincture is a good form to give the remedy. The prescription is particularly valuable in the treatment of drunkard's dyspepsia, morning sickness, faintness, etc.

CONSUMPTION CONTAGIOUS.—Dr. A. N. Bell, of New York City, read before the late session of the American Medical Association, a very interesting and remarkable paper, in which he demonstrated, by the results of a large number of carefully conducted experiments, the following points relating to consumption, or tuberculosis:—

1. The disease is contagious. It may be conmunicated by expectorated matter, or by means of diseased tissue.

2. Tuberculosis, or consumption, is a very common disease among cattle, horses, fowls, and other domestic animals.

3. This disease is produced in animals, by the same cause which occasions it in human beings; viz., bad air, impure food, want of sunlight and other hygienic surroundings.

4. Eating the raw flesh of animals affected with this disease is the surest means of infection.

5. The disease may be communicated by the use of the milk of tuberculous animals; ordinary cooking does not destroy the poisonous properties of the tuberculous flesh.

ALBUMINATE OF IRON.—This remedy has produced peculiarly good results in the hands of French physicians in anæmia and chlorosis. It is quite soluble, and easily absorbed into the system, and capable of being borne on the weakest stomach.

Book Notices.

CUTANEOUS AND VENEREAL MEMORANDA. By HENRY G. PIFFARD, A. M., M. D., Prof. in the University of the City of New York. 18 mo. pp. 301. New York: Wm. Wood & Co. Cincinnati: R. Clarke & Co. 1877.

This is certainly one of the most convenient little works we have ever met with. So small that it can easily find room in the pocket, if a physician should ever

wish to place it there, yet it is full enough in detail for all practical purposes. The descriptions of the various skin diseases are ample for their recognition, and the outlines of treatment will be found satisfactory. It is certainly *multum in parvo.* The daily practitioner will find it almost as satisfactory as Wilson on Diseases of the Skin, although it is not more than $\frac{1}{20}$th as large.

LECTURES ON FEVERS. By ALFRED L. LOOMIS, A. M., M. D., Prof. of Pathology and Practical Medicine in the Medical Department of the University of the City of New York, etc., etc. 8vo. pp. 403. 1877. New York: Wm. Wood & Co. Cincinnati: R. Clarke & Co.

These lectures were delivered in the Medical Department of the University of the City of New York to the class of 1876–77. There are thirty lectures treating of typhoid fever, yellow fever, malarial fevers, simple intermittent, simple remittent, pernicious fever, dengue, typho-malarial, typhus, relapsing fever, exanthematous fevers, small pox, scarlatina, measles.

The work will undoubtedly be regarded as a valuable contribution to the literature of fevers; and, written in plain, practical, and easily understood language, it will be popular with the most of physicians. Fevers form a class of diseases which are very prevalent throughout this country, and constitute a large portion of every medical man's practice. A work that will tend to throw light upon their pathology, course, and treatment cannot but be acceptable, and this one will be found of that character. Prof. Loomis has been a teacher of medicine for many years, and occupies an eminent position as such. No one can be better qualified than he by long observation and study to give instruction.

As considerable is said in this number of the MEDICAL NEWS in regard to *typho-malarial fever*, we examined the work with considerable curiosity to ascertain whether Dr. Loomis recognized such a disease. We find that he does, and devotes two lectures to its consideration. On page 182, first lecture, he states that he regards the term as one denominating a fever which is produced by the combined action of a *septic* and a *malarial* poison. "You will meet," he says, "with some cases of typho-malarial fever in which the septic element predominates, and

others in which the malarial element is predominant. The preponderance of the leading features of the one or the other of these two forms of fever will enable you to determine, with a good degree of certainty, the course, prognosis and treatment of each individual case. The distinguishing lines, however, between these two elements are not always sharply defined, but almost imperceptibly the symptoms dependent upon one poison become mingled with those developed by the other. Both of these elements may be modified in their manner of development and in their morbid anatomy by the occurrence of various intercurrent complications, such as scurvy, pneumonia, etc."

THE ORIGIN OF THE WORLD, ACCORDING TO REVELATION AND SCIENCE. By. J. W. DAWSON, Principal of McGill University, Montreal. New York: Harper & Brothers. Cincinnati: Robert Clark & Co. 12mo. 438 pp.

This is one of the ablest and most satisfactory "reconciliations of science and religion" lately published. It is an expansion and revision of the author's "Archaia," published in 1860. Principal Dawson stands confessedly at the head of the men of science who have not given in their adhesion to the theory of evolution. Those who think him most mistaken are ready to admit his learning and candor. On this point he sets forth his views as follows:—

"1. The albuminous or protoplasmic material which seems to be necessary to the existence of every living being, is known to us as a product only of the action of previously living protoplasm. Though it is often stated that the production of albumen from its elements is a process not differing from the formation of water or any inorganic material from its elements, this statement is false in fact, since, though many so called organic substances have been produced by chemical processes, no particle of either living or non-living organizable matter of the nature of protoplasm has ever been so produced. The origin, therefore, of the albuminous matter is as much a mystery to us at present as that of any of the chemical elements.

"2. Though some animals and plants are very simple in their visible structure, they all present vital properties not to be found in dead albuminous matter, and no mode

is known whereby the properties of life can be communicated to dead matter. All the experiments hitherto made, and very eminently those recently performed by Pasteur, Tyndall, and Dallinger, lead to the conclusion that even the simplest living being can only be produced from germs originating in previously living organisms of similar structure. The simplest living organisms are thus to science ultimate facts, for which it cannot account except conjecturally.

"3. No case is certainly known in human experience where any species of animal or plant has been so changed as to assume all the character of a new species. Species are thus practically to science unchangeable units, the origin of which we have as yet no means of tracing.

"4. Though the general history of animal life in time bears a certain resemblance to the development of the individual animal from the embryo, there is no reason whatever to believe that this is more than a mere relation of analogy arising from the fact that in both cases the law of procedure is to pass from simpler forms to the more complex, and from the more generalized to the more specialized. The external conditions and details of the two kinds of series are altogether different, and become more so the more they are investigated. This shows that the causes can not have been similar.

"5. In tracing back animals and groups of animals in geological time, we find that they are always without any link of connection with previous beings, and in circumstances which render any such connections improbable. In the work of our next creative day the series of animals preceding the modern horse has been cited a good instance of probable evolution; but not only are the members of one series so widely separated in space and time that the connection can be traced, but the earliest of them, the Orohippus, would require, on the theory, to have been preceded by a previous series extending so far back that it is impossible, under any supposition of the imperfection of our present knowledge, to consider such extension probable. The same difficulty applies to every case of tracing back any specific form, either of animal or plant. This general result proves, as I have elsewhere attempted to show, that the introduction of the various animal types must have been abrupt, and under some influence quite different from that of evolution."

The main purpose of the volume is to show that the Mosaic account of creation is not discordant with the geological record, as far as settled, and that the alleged extreme duration of man's existence on the globe is maintained on insufficient evidence and by unreasonable postulates.

On the latter division of his subject Dr. Dawson is not as full or exhaustive as Southall and some other writers, though he coincides for the most part in their conclusions, and argues the outlines of their positions with much force. He is specially happy in showing, as he does with much detail, that, without any departure from the ordinary laws of interpretation, the Mosaic days may be set down as long periods; that such was the opinion of Origen, Augustine, and other church fathers who lived long before geology was heard of; that the traditions of the Aryan, Turanian, and Semitic races regarding the beginning of things, are remarkably in accord, while the Semitic or Mosaic account is alone wholly free from a debasing mixture of polytheism. He is as plain spoken in his rebukes of those theologians who have made bungling attempts to "accommodate," the biblical narative to the demands of science, as in his exposure of the unfairness of those persons who have endeavored to make it unscientific and absurd. He professes his entire willingness to accept whatever is proved, while he has as little patience with scientific as with theological narrowness.

We commend the work to all interested in modern science, whether they are inclined to agree with the author or not, as a thoughtful and interesting review of subjects now warmly discussed. If Principal Dawson does not convince all his readers, he will at least show them that there is a good deal to say on his side of the question.

A Treatise on Gonorrhea and Syphilis. By Silas Durkee, M. D., Consulting Surgeon to Boston City Hospital, etc., etc. Sixth Edition, with eight colored illustrations. 8vo. pp. 467. Philadelphia: Lindsay & Blakiston. Cincinnati: R. Clarke & Co. 1877.

Dr. Durkee, having had an experience of many years in the treatment of venereal diseases, is certainly well qualified to present to the profession a treatise on gonor-

rhea and syphilis. That his qualities have been appreciated is evidenced in the fact that this work has passed through five editions, and another one is called for. It is one of sterling merits, and should find place, with other standard works, in every medical man's library.

The primary design of the author has been to furnish a book that shall be practically useful, studiously avoiding engaging, to any great extent, in the discussion of all doubtful matters.

We have not space to devote in describing particular views held by the author. We will only remark that they are such as close observation and careful study have caused him to adopt. Not being at all sensational in his character, he has not accepted conclusions merely because they were novel in their character.

We think that both student and physician will find the work adapted to their wants.

TRANSACTIONS OF THE INTERNATIONAL MEDICAL CONGRESS OF PHILADELPHIA—1876 Edited for the Congress by JOHN ASHHURST, JR., A. M., M. D., Fellow of the College of Physicians, Phil., Prof. in University of Pa., etc., etc. 1877. 8vo. pp. 1153. Cincinnati: R. Clarke & Co.

This is a large and valuable work, containing the papers read before the different Sections of the Congress. Many of the papers are of the highest order, written, as they were, by gentlemen of recognized eminence and learning in the profession who had devoted much attention and study upon the subjects on which they wrote. The papers and addresses printed are eighty-one in number. Following many of the papers are reports of the discussions upon them, which add very much to the interest of the volume.

The Congress was in session six days, commencing Monday, Sept. 4, 1876. Prof. S. D. Gross presided over the meetings. The register had enrolled the names of 382 delegates. Of course the United States furnished by far the largest number, but we find names of delegates from England, Scotland, Austria, Belgium, Russia, Denmark, Japan, Canada, Nova Scotia, Finland, Holland, Norway, Austria, Ireland, Mexico, Cuba, Germany.

Editorial.

American Academy of Medicine.—We have received a copy of the First Annual Address delivered before this institution by the retiring President, Prof. Traill Green, A. M , M. D., LL. D., of Easton, Pa. We have only had time to glance at it, but this very little examination has shown us that it is of the high order which characterizes the productions of its scholarly and accomplished author.

Prof. Green takes high grounds as regards the education of physicians. He thinks that all who propose to enter the medical profession should be qualified by a very thorough preliminary education. In speaking of the association before which this address was delivered, and which requires that all its members should be men of education, learned in the sciences and in literature as well as in medicine, he says:

"It will not be deemed an unbecoming movement if the members of a learned profession associate for its advancement. It cannot be considered an unseemly organization if they call together for this purpose those who love learning as well as the science which they pursue. It cannot be called an improper movement if they use their influence to direct those who would associate with them in the practice of a noble calling to qualify themselves fully for the great work in which they are to engage. None will dare to say that it is possible for any to reach too high a preparatory culture before they attempt the difficult and extended studies of a learned profession like ours. In all that is to be done in the methods proposed, we must do it ourselves. The *Gazette Hebdomadaire*, in the item already referred to, after stating that medical education in the United States is bad, says, 'The means of remedying the evils are to be sought in the voluntary action of medical colleges, in legislation, or in public opinion. Unfortunately their exists a jealousy between the different schools, a rivalry which prevents united action. The public, which is chiefly interested in this matter, looks on with perfect indifference.' We are doubtless in agreement with the author of this paragraph. By the movement inaugurated in a few schools, less than half a dozen, it is not possible that the needed reform

can make rapid progress. Legislation cannot accomplish it, and the public is 'perfectly indifferent.' Our only hope then is in the profession itself. Those who hold correct views of its exalted character must labor to restore to the great body of the profession the lost sense of its dignity as an intellectual profession."

One of the objects of the "American Academy of Medicine," as stated in its constitution, "is to encourage young men to pursue regular courses of study in classical or scientific institutions before entering upon the study of medicine."

The following are the requirements, among others, of membership:

"1st. The degree of Bachelor of Arts, after a systematic course of study, preparatory and collegiate, extending through a period of time not less than six years.

"2d. The degree of Master of Arts in course in accordance with the usages of such schools; and

"3d. The degree of Doctor of Medicine, after a regular course of study, not less than three years, under the direction and instruction of preceptors and professors.

"4th. When the degree of Doctor of Medicine has been obtained from an institution which requires of its graduates evidence of preliminary academic study equivalent to a thorough collegiate course, no other degree shall be required.

"5th. Those who have pursued systematic courses of study in institutions which do not confer the degree of Bachelor of Arts, or have pursued irregular courses of preliminary study in other institutions, and consequently have not obtained this degree, but have nevertheless received, after the usual course of medical studies, the degree of Doctor of Medicine, and also the honorary degree of Master of Arts from institutions recognized by the Academy, and have made frequent contributions to medical science, may become Fellows until after the year 1880."

The President for the coming year is Dr. Frank Hastings Hamilton, LL. D., of New York. A regular meeting is held each year. Every other year, or biennially, the meeting will be in New York—in the intermediate year in some other place.

Dr. J.. S. Woodward *v.* Dr. Roberts Bartholow.—Our

readers will observe, in this issue of the MEDICAL NEWS, an article by Dr. J. J. Woodward, U. S. A., of Washington, entitled a "Brief Rejoinder to Some Recent Articles by Dr. Roberts Bartholow." Dr. W. charges Dr. B. with misrepresentation and other improper acts as regards himself. How nearly he substantiates his charges our readers can judge for themselves.

Dr. Woodward has sent us a few copies of his address on "Typho-Malarial Fever," which will be found quite valuable as a contribution to medical literature. We will be quite happy in furnishing copies, as far as they will go, to such as desire to read it.

THE MURPHY MOVEMENT.—Dr. T. D. Crothers, editor of the *Quarterly Journal of Inebriety*, in the last number of it, says:

"What the poor inebriate needs most is, isolation from exciting causes, with conditions and circumstances that will build up his body; then pledge him to reform, and he is in a condition to get well. All healthy mental activity must depend upon the body; if this be deranged, the mind cannot be strong."

Again he states: "The failure to sustain the pledges and resolves which the inebriate makes sinks him lower and lessens his faith in himself, literally precipitating him morally and physically."

These statements contain very much truth. The long-continued use of intoxicating liquors brings about changes in the tissues of the brain, the seat of the appetite, emotions and intelligence, and until the altered structures can be brought into a healthy condition we cannot expect much in the way of reformation. The physiology of the nervous system teaches that there cannot be action until an emotive power operates, and then it must be in accordance with the character of that force. In an organization perverted by drink, sensual desires control the actions, and carry the individual along in spite of the promptings of the moral feelings, whose strength can offer but little resistance in consequence of the physical changes which have been wrought. The judgment may be convinced in regard to a matter, but the intelligence never acts directly upon the will—an emotion or feeling must first be aroused before a man ever takes a step, and then it will be in the direction guided by the emotion or feeling. If the ner-

vous centres have become perverted, perverted appetites and passions must be the consequence, which will control the conduct. It is as absurd to call on the habitual drunkard to reform without affording him the conditions necessary to bring about a change in his physical organization, as it is to call on a naked man to clothe himself and withhold clothing from him.

A certain minister stated once in our hearing, that in every case of conversion a miracle was performed by divine agency. This certainly must be the case in order for a person to become a " new creature " on the spot, with changed affections and desires, for physiology teaches plainly that that cannot be done without change of structure, and this cannot be brought about in the natural way except by time and change of conditions—new influences operating upon the individual. Temperance reformations, then, to be successful, without the agencies of science, must be effected by the church, through which alone Providence operates in working miracles.

We would not be surprised, if, after the " Murphy movement " had spent itself, there would be an increase of intemperance, for broken pledges and vows, as stated by Dr. Crothers, tend to degrade an individual, and sink him lower, for he then perceives he has no strength in himself to become better, and he yields himself up more readily to the demon that holds him captive. His help must come from without—God or Science.

Culture in Physicians.—The statement in the following clipping will apply equally as well to the doctor as to the preacher.

" The importance of culture in the ministry, especially in regard to personal habits, is thus set forth by Dr. Sherman, in his address at the matriculation of the new class in the Boston Theological School, who said that, within the circle of his observation, more ministers had failed in preserving their acceptableness and usefulness among the people on account of offensive little habits, or readily curable deficiencies of character and culture, than for other reasons. An unfortunate pitch of voice, a habit of using slang phrases, a lack of the marked graces of a gentleman, the using one's hand in place of a hankerchief, the prominent relief of an irritation in the head or throat in an

offensive and disgusting way, the ill-concealed quid of tobacco or its poisonous stain down the sides of the mouth or upon the quite prominent teeth—such occasions as these, small enough in themselves, indeed, but serious enough in their certain consequences, have cost many a minister of no inconsiderable ability and scholarship his place in the pulpit and his efficiency as a preacher of the gospel."

HOUSE OF BUNTIN AND ARMSTRONG.—The preparations of this house hold a high position among physicians. They are all as represented. We are acquainted with some of the members of the firm, and know them to be gentlemen of integrity and of ability, who can, under all circumstances, be relied upon. We cordially recommend them as worthy of patronage.

GRANULES OF MORPHIA AND OTHER MEDICINES.—We are indebted to the house of W. H. Schieffelin & Co., of New York, for large samples of their granules of morphia and other medicines. Those of morphia, on account of their very small size, are admirable in that, in a half drachm vial or less, very many can be carried by a physician in his vest pocket, and dispensed to a patient forthwith without being compelled to wait a long time for a prescription to be filled at a drug store. Carried along at night, when one has good reason to believe that an opiate will be required on the spot, they will be found especially convenient. In many such cases a patient will be relieved in half the time medicine can be procured from an apothecary. Accuracy in doses is guaranteed. The morphine granules contain of a grain, as may be wished, the $\frac{1}{10}$th., $\frac{1}{8}$th., $\frac{1}{6}$th., $\frac{1}{4}$th. We prefer the last.

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Original Contributions.

Maggots in the Ear.

By J. H. UNDERHILL, M. D.

One morning, in the summer of 1876, a young man, æt. 18, a news agent, consulted me in regard to a painful affection of the ear. He informed me that for two or three days prior to consulting me he had suffered most excruciating pain in the right ear. The pain was so exceedingly severe as to preclude the possibility of obtaining any sleep whatever. On the night before presenting himself at my office, it had been more intense, if possible, than at any time previous, and was accompanied by a tumultuous action as if some living insect was moving about in the aural cavity. This latter sensation had not been experienced until about twelve hours before he came under my observation. Notwithstanding his agony he went to the office before daylight, and receiving his package of papers, delivered them as usual—after which he lay down for the purpose of obtaining, if possible, a few hours sleep, of which he had been, for two or three nights, entirely deprived. But before lying down he took some cotton-wool and introduced it into the external auditory canal. To his great delight the pain and rustling sensation in his ear soon ceased, and he fell into a sleep from which he was awakened in an hour or two by a member of the family. He arose pleased at having obtained relief, but, upon looking at the pillow where his head had lain, was surprised to find it stained with blood. Then, upon carefully removing the cotton from his ear, he found that it also was pretty well saturated with blood, and, to his astonishment, it contained among its fibres, *five* living.

moving little worms, resembling maggots. Thoroughly alarmed at this aspect of the case, he immediately came to my office, bringing with him the parasites in a small vial, partly filled with water. They presented to the eye the ordinary appearance of the fresh maggot. I kept three of them, preserving them in dilute alcohol, but now —at the end of eighteen months—they are of course much shrunken in size, and have assumed a brownish color.

Upon inspecting the auditory canal by aid of the reflecting mirror, I could detect nothing unusual, save a few drops of partially dried blood, and an hyperæmic condition of its living membrane and that of the tympanum. As the irritant had doubtless been got rid of, and as there was now no pain, I therefore directed no other treatment than simply to fill the external canal of the ear with warm water occasionally, for one or two days. The patient informed me that prior to consulting me he had done nothing for the relief of the pain, and that in fact he had attempted no treatment whatever.

I could not learn that he had ever before suffered from otalgia, otorrhea, or any affection of the hearing organs. His hearing was almost perfect, though perhaps not quite so acute in the affected ear,—a condition which would of course be expected in consequence of the irritation to which the parts had been so recently subjected. I requested him to call again should there be any subsequent unpleasant symptoms, but as he never returned, it is only fair to assume that he experienced no further difficulty.

The case possesses unusual interest to me, being the only one of the kind which has ever come under my notice. As, however, I engage only in general practice, it is, perhaps, not surprising that I have not seen others of a similar character. Besides, if I entertain the correct notion of the origin of such parasites, similar cases are much more likely to be met with in the torrid latitudes than in the temperate zones. Doubtless the specialist in otology more frequently sees such cases than the general practitioner. I have not studied the literature and reports of similar instances sufficiently to be able to pronounce positively as to what is the commonly accepted view of the origin of maggots in the ear. Possibly they may sometimes originate under circumstances different from the one with which I believe their development was in this case connected. Although my patient did not re-

member of an insect or fly having entered his ear during a few hours or days before his torment began, yet I have no doubt that there did take place such an occurrence. When the history of the case—coupled with the fact that it occurred in hot weather—is fully considered, it will appear exceedingly probable that a maggot-fly darted into his ear,—very likely during sleep,—and there deposited its ova, which, in a few hours thereafter, developed into maggots. Strength is left to the supposition that the ova deposit was effected during sleep, by the fact that the nature of his occupation required him to secure the greater part of his sleep during the day.

Protagon.

By C. W. Williamson, M. D.

Protagon is a solution of organic phosphates, phosphites, and hypophosphites. The calcium salts are immediately concerned in cell evolutions, and in the elaboration of bone; the magnesium salt is also an important constituent of bone in childhood, and exerts a very valuable influence in adult life in overcoming the butyric fermentation so frequently displayed in the various cachexia. Ammonium cerebrate is really the prime factor, the motor principle of life, and is alone entitled to the appellation—protagon; sodium phosphate is an important constituent of the blood, and is an indispensable agent in maintaining the equilibrium of carbonic acid, as demonstrated by Liebig; and the potassium cerebrate is the organizer of muscular structure. These facts are too nigh accepted to justify the space for demonstration. The point I aim to prove is, that organic phosphates are alone demanded in vital functions, and laboratory made phosphates do not attain this position.

The experiments of Dr. Polk on dogs, detailed in his elaborate paper on "Tuberculosis," published in the New Orleans *Medical and Surgical Journal*, September, 1877, seems to establish this fact beyond controversy, but Dr. Polk is not alone and unsustained in his conclusions. I give these in his own language: "These experiments prove that the phosphates are as essential to nutrition as nitrogen is to the integrity of muscular tissue, and carbon to the maintaining of animal heat; and furthermore, the

conclusion is inescapable, that the phosphates which serve the purpose of animal or vegetable life, must be developed in an animal or vegetable organism. It is only these which are nutrient, organismal, or take part in vital processes, while those manufactured in the laboratory cannot attain this relation." *Ohio Medical Journal*, June, 1877, (page 229.)

Dr. Tilbury Fox, the distinguished writer on skin diseases, says that " there is something special in the organized phosphates, in fact, that have been formed by passing through a living organism as compared with those artificially made. It is not the *amount* but the *kind* exhibited which produces the good *result*." Dr. Percy gives a similar view: he says—"The phosphates that enter the animal system as laboratory compounds, do not perform the same functions as the phosphates that enter the system through the natural chemical elaboration of vegetable life." Andre Sanson says, " that the phosphates that are manufactured in the laboratory are not such as should be used, because their form does not allow of their assimilation."

I have presented here an array of testimony which cannot be easily ignored. Fox, Percy, Polk, and Sanson are well known as careful and conscientious investigators and teachers of medical science. Views so unanimous are not generally attained, and this unanimity is a proof of their accuracy. Polk, as is well known, first introduced isolated brain phosphorous compounds into medical practice under the name of " protagon," and has probably produced as nearly as perfect a preparation as possible to be made. After an extensive trial with protagon, and the favorite preparation of Dr. Polk, I must dissent from his choice, and give protagon the preference over all other chemical foods, "Glycerite of Kephaline" included. But when I say "protagon," I mean protagon as obtained by Liebreich's method, representing lecithene, kephaline and neurine, and containing all the phosphates, phosphites and hypophosphites of the brain; and not the solution of wheat phosphates now in market, and sold under the name of " protagon."

Without entering into a detail of cases, I will say, that I use protagon, extract of malt, and cod liver oil, almost invariably, in the earlier stages of tubercular phthisis, and the result is far more satisfactory than I have derived from cod liver oil alone. A considerable per cent seem to recover perfect health.

After the disease has made considerable progress, the benefit is not so uniform or positive, yet, nevertheless, I have derived very excellent results in more than half the cases I have thus treated. In the advanced stages of phthisis it seemed to do more harm than good.

In wasting diseases of children I have great confidence in protagon, in fact, in more than in any other agent.

In impotency or impaired virile power, I regard protagon surperior to any other agent in the materia medica.

In loss of memory, impaired brain power, nervous debility, and general vital deterioration, unattended with organic disease, it is almost a specific, or as near as any in therapeutics. It usually remedies these difficulties promptly and effectually.

Dislocation of Both Clavicles.

By. N. C. Morse, A. B., M. D. Eldora, Iowa.

Mary C., æt. 8 years, on Oct. 27th, 1877, was knocked down and run over by a team of horses. When called to see her, about an hour after the accident, I found her as follows:

An *outward* dislocation of the sternal end of the right clavicle, (caused, I presume, either by the stroke of the hoof of one of the horses against the shoulder, or by the force of the fall,) while the sternal end of the left clavicle was dislocated, and forced directly *backward*, fracturing, at the same time, the first rib—a wheel of the heavy vehicle having passed directly across the bone. A portion of the left breast and arm was considerably bruised, but not otherwise injured.

The child was semi-comatose; breathed with great difficulty, the nostrils widely dilating at each inspiration; the face and neck presented a marked appearance of venous congestion, and the danger of dyspnœa seemed to be increasing rapidly.

I reduced, with little difficulty, the luxation of the right clavicle by the usual method, but the left I could not retain in its proper position by any ordinary appliance. Finally, I took a feather pillow and pressed it firmly against the back; then, after getting the clavicle in as good a condition as possible, I took hold of the arm and

drew it gently downward and backward as far as was necessary. I fastened it in this position by passing the bandage entirely around the body, including the pillow. The right arm was supported in a sling upon the front of the chest.

After the pressure of the clavicle was removed from the trachea and veins, the child breathed much easier, and seemed very comfortable.

On the tenth day after the accident, I removed the pillow, etc., and applied the simple figure-of-eight bandage to both shoulders.

At the present writing, I can say that the child is recovering rapidly, and will have the full use of both shoulders, with no deformity.

Dermatology.

By Lunsford P. Yandell, Jr., M. D., Professor of Therapeutics and Clinical Medicine, University of Louisville.

SYPHILIS, SCARLATINA, MEASLES, VARIOLA, AND VARICELLA.

In the brief report on dermatology which I had the honor to make to the Society, at its last session, my remarks were confined to the skin diseases proper, meaning by this term those non-specific affections whose major symptoms are observed on the skin, and whose demonstrable existence indeed consists in most instances solely in the eruption. This division of the subject is of course purely arbitrary, and is merely adopted for convenience.

The correctness of the views expressed in my previous report as to the etiology and therapeusis of the maladies of the skin, has been confirmed by twelve months' observation in hospital, dispensary, and private practice; and I now reiterate the assertion then made, that "the most abundant source of acute skin disease is that mysterious something which we call malaria; the diathetic poison known as struma is the chief source of the chronic skin diseases; and to these two materies morbi we may trace the greatest number of diseases of the other tissues." Be it understood I am not now including the specific exanthems; and I do not claim that malaria and struma are the sole causes of the true skin diseases.

On the present occasion it is my purpose to consider,

as briefly as possible, the specific exanthems: scarlatina, measles, variola, varicella, and syphilis.

Scarlet fever (*scarlatina*) was known to the profession as early as the sixteenth century; but its specific nature was first established by Morton about the middle of the seventeenth century. (Ziemssen.) Up to the present day the profession is not of one mind as to the best treatment for it. Our main reliance is an attention to general conditions, not neglecting local symptoms. Quinia, iron, and heart tonics, together with baths and anointings, comprise the most promising remedies. Belladonna, either as a preventive or curative agent, is no longer thought of. As to the name and symptoms of scarlatina there is no dispute, but its contagiousness, though generally conceded, has some firm opponents.

M asles, formerly denominated *rubeola*, and now called *morbilli* by many writers, is said to have been known during the fourteenth century, though its specific nature was not established till about the middle of the last century. The term morbilli means literally "little disease," and was first employed, according to Hebra, to distinguish measles from the greater and graver disease, the plague. Measles is from the German word *maser*, a pot; and rubeola signifies a reddish color. By this name, in former times, several distinct diseases were called. At the present rubeola is frequently used to describe what is otherwise called *rotheln*, or German measles. This is an extremely insignificant malady, closely resembling milder cases of measles. Little, if any, treatment is necessary, and prognosis is favorable.

In the management of measles much improvement has been made within the last quarter of a century. Its self-limited nature, its brief duration, and its tendency toward recovery, in the great majority of cases, are now recognized facts; and it is only for the relief of symptoms of unusual severity, or for some complication, that medical interference is demanded. The patient should be allowed food and drink, hot or cold at will, and good ventilation should be secured.

Variola is probably of eastern origin, and is of incalculable antiquity. A hundred years ago it was the most dreaded and the most fatal of diseases. At that time it was far more exceptional for persons to escape small-pox than it is now for them to contract it. It was estimated that

from ten to twelve per cent. of all the deaths then occurring were due to this scourge. Jenner's great discovery, vaccination, though still violently opposed by a few medical men, has robbed the disease of much of its terror; and it is believed by some that it not only prevents small-pox, but that its influence on the race in general, by heredity, has been to diminish its virulence. Were vaccination universally performed, it is probable that total eradiction of variola would eventually be accomplished. The contagiousness of small-pox, although almost universally admitted, has its opponents. In the treatment of variola we have no late advances to record. To make the patient as comfortable as possible, to treat symptoms, to assist nature, comprise all that we can safely do.

Varicella, or chicken-pox, though one of the specific exanthems, is of no importance, and requires, as a rule, no treatment; but in obstinate, protracted cases, quinia and iron are demanded.

I now come to the gravest of the specific exanthems. Though seldom occurring in epidemic form, and less violent than scarlatina and variola, it exists in all seasons and in all countries, and is ever increasing. I speak of *syphilis*.

The origin of the word *syphilis* is an unsettled question, and I venture to offer a theory on the subject which seems to me more probable than any hitherto suggested. "The town disease," "the town disorder," are terms used by the lower class, and especially among the rustics, to indicate this affection. Syphilis, from our first knowledge of it, has been eminently a city disease. The Latin word *civilis* signifies pertaining to a city, or to citizens; and it occurs to me that *morbus civilis*, *i. e.*, citizens' disease, or city disease, was probably the first popular name for syphilis. Furthermore, it is perfectly natural, and in accordance with popular custom, that, for the sake of brevity, the word *morbus* should have been dropped, leaving only *civilis*. The alteration in the spelling of the word is not remarkable. Chancre was once spelt *shanker*, scrofula was spelt *scrophula*, and often we find even the meanings of words wrenched entirely from their original signification. For instance, gonorrhea literally means a flux of semen, indolent means painless, and collyrium, which to-day means an eye remedy, once indicated a cylindrical medicine to be introduced into the anus, vagina, or nostril.

Any extended history of syphilis in a paper like this would be out of place, and I shall therefore only venture to make a few remarks concerning the origin of the disease. In Lord Bacon's Natural History, printed about the year 1660, page 6, (" Experiment solitary, concerning the venomous quality of man's flesh,") he says : " The French (which put off the French disease unto the name of the disease of Naples), do report that at the siege of Naples there were certain wicked merchants that barreled up man's flesh (of some that had been lately slain in Barbary), and sold it for Tunney ; "—[tunney-fish, I presume —L. P. Y., jr.]—" and that upon that foul and high nourishment was the origin of that disease. Which may well be; for that it is certain that the cannibals in the West Indies eat man's flesh; and the West Indies were full of the Pock when they were first discovered. And at this day the Mortalest Poysons, practised by the West Indians, have some mixture of the blood, or fat, or flesh of man. And divers witches and sorceresses, as well among the heathen as among the christians, have fed upon man's flesh to aid (as it seemeth) their imagination with high and foul vapors."

This absurd theory of Lord Bacon's, it is unnecessary to remark, is not entertained at the present day.

Among other conjectures as to the origin of syphilis, sexual intercourse on the part of soldiers with mares affected by farcy has been suggested ; also sexual intercourse between the human species and the hog, and sexual commerce between individuals of different races and climates. These doctrines have no followers among modern syphilologists.

It is an interesting fact that almost every nation has been charged with the paternity of the pocks. It has been called the American disease, the English disease, the French disease, the Italian disease, the Polish disease, the Turkish disease, and so forth to the end of the chapter of peoples.

Wars have been, in all likelihood, an important factor in the development and spread of syphilis, and the armies are most probably the authors of the nicknames just enumerated; for we know that soldiers are not remarkable for chastity, and are not niggardly in the bestowal of hard names on the enemy. Whatever be the origin of syphilis, and probably we shall never determine the man-

ner of its birth or the country of its nativity, this much we do know, that syphilis is to-day universal in its dissemination, and is steadily increasing in all lands, and that its spread is most marked in countries of the highest civilization. Indeed, it may be said that civilization and syphilis march hand in hand.

The prophylaxis of syphilis, this most loathsome of acquirable diseases, is one of the great questions of state medicine of to-day. So far no practicable plan for its arrest has been devised, and I freely confess I have no suggestions to offer. Indeed, until the human race become virtuous, there is, it seems to me, but little hope for a decrease in syphilis.

Venereal diseases in the past we regarded as among the *opprobia medicorum*, and were relegated to the surgeons, who, in times gone by, occupied a position less honorable than that which they have sinced carved for themselves. To-day these affections are claimed by the dermatologists as properly belonging to their branch of medicine; but here, in Kentucky, where despotic specialism is less arrogant and dominant than in some other quarters, every practitioner is more or less of a syphilologist.

Those of you who are familiar with the literature of syphilis, are aware of the wide diversity of belief among the recognized authorities; and, since we have no established creed, I feel myself at liberty to offer the following brief statement of some of the more important practical truths of syphilis as they appear to me. These are opinions based on twenty years' clinical observation and study of the subject:

Syphilis is a unity. It is due to but a single poison, and can not be produced by any other. Syphilis never produces any other disease than syphilis.

The syphilitic virus is inoculable by means of the blood, milk, saliva, semen, pus, and all the other normal and abnormal secretions of syphilitic subjects. This virus, in order to produce its effects, must go directly into the circulation. Applied to the unbroken skin or mucous membrane, it is harmless. Taken into the stomach it is inert. In these respects its behavior corresponds with the poison of reptiles, insects, rabid animals, and the vaccine virus.

Syphilis may be transmitted by either parent to the offspring.

A syphilic father may beget healthy children, and a

father once syphilitic, but to all appearances cured, may beget syphilitic children. A sound mother may bear syphilitic children without herself becoming contaminated; or she may acquire the disease from the child during the process of gestation.

Syphilis is communicable by contact, and transmissable by inheritance in all its stages; least so in the tertiary.

The division of syphilis into three stages is purely arbitrary. The same poison exists in each, and may show itself in the offspring in either of the forms called primary, secondary, and tertiary.

Acquired syphilis appears in the form of what is known as primary, though this stage may escape the observation of both patient and physician, and the secondary may be the first syphilitic manifestation to arrest attention. Inherited syphilis appears as either secondary or as tertiary.

The rule in acquired syphilis is that secondary next follows primary, the tertiary succeeding the secondary; but the tertiary may precede the secondary, and the secondary may never appear at all.

Primary syphilis, initial lesion of syphilis infecting chancre, Hunterian chancre, indurated chancre, hard chancre, true chancre, are synonymous terms. This lesion may occur on any portion of the body, but most frequently it appears on the sexual organs, because of their more frequent exposure to the venereal accident.

An unique induration, a peculiar hardness, is an almost invariable feature of the primary lesion. This sore is usually single, painless, non-suppurating. It is discovered within a period varying from eight days to three months after exposure. Bilateral, symmetrical, or, in other words, simultaneous enlargement of the lymphatics of both sides of the body commonly accompanies syphilis.

Secondary syphilis shows itself within three weeks to three months after the primary. Tertiary comes on within three to six months after the beginning of the secondary. All the stages, in rare instances, may co-exist, and the primary sore often lingers after the secondary symptoms are thoroughly established.

Suppurating bubo is an exceptional accident in syphilis. It is not a natural feature of the disease. Unless the subject of indurated chancre be in depraved health, or the sore be injudiciously treated, glandular suppuration will rarely happen. Phagedæna is likewise an accident in

syphilis, and has no natural connection with it. Malaria, alcohol, malnutrition, and local constriction are its usual sources.

Treatment. — Destructive cauterization and excision should never be resorted to, either in genuine chancre or any other venereal sore. The so-called soft chancre, chancroid, non-infecting sore, never deserve to be cut or burned out, because it never contaminates the system. It can no more produce syphilis than can scrofula or cancer. The true chancre should never be cut out or burned out, because the system is already contaminated when it is perceived. Its existence is positive proof that the system is already poisoned. Excision and cauterization irritate the sores, aggravate the existing inflammation, and thus enchance the chances of suppurating bubo.

Venereal sores require exactly the same treatment as other sores, and heal most quickly under the application of anodynes, astringents, and protectives, accompanied by the internal administration of iron and bitter tonics. The occasional administration of sulphate of copper often promotes their healing. Soap and water are irritants to syphilitic sores as they are to all others, and should rarely be used in the management of any of the solutions of continuity. To cleanse the sores oil is the best material.

Diet in Syphilis.—The diet should be the best at the patient's command, and meats and fats should be especially insisted on. Tobacco and alcohol must be imperatively prohibited in all the stages of the disease. They act both as local irritants and constitutional poisons.

Secondary and tertiary sores require the same management as the primary lesions in all respects. Far too much attention is usually given to local treatment in syphilis, as in other eruptive diseases.

Mercury is the only antidote to constitutional syphilis, and syphilis is always constitutional. For mercury we possess no substitute. Iron and bitter tonics, and all agents which promote nutrition, should be given in connection with the mercury, and large doses of quinia are often demanded; cod-liver oil, syrup, hypophosphites, syrup. ferri iod., and the extract of malt, are valuable remedies in the advanced stages.

In the treatment of tertiary syphilis, iodide of potassium possesses great palliative, if not curative, influence, and without it it is impossible in many cases to control the

more advanced and serious manifestations of the disease. It should be given largely diluted, and from a drachm to one ounce or more in the twenty-four hours is often required.

The best form of mercury for internal administration, in my judgment, is corrosive sublimate, in solution. The best method of administering mercury is the moist mercurial vapor bath. The baths remove the symptoms of the disease with greater certainty, with more rapidity, relapses are less frequent, and the risk of producing the ill effects of mercury under this treatment is *nil*. Mercurial inunction is the most satisfactory method in infantile syphilis, though the bichloride acts well in these cases. Whatever form of mercury or method of administration be adopted, the treatment should be prolonged uninterruptedly for some weeks or months after all signs of the disease have disappeared; and the mercurial treatment should be followed by a more or less prolonged course of iodide of potassium.

Prognosis.—An eminent German syphilologist is said to have declared that not only is syphilis never eradicated from the system, but that the ghosts of pock-infected inhabitants of this world will suffer from the dread affection in the land of shadows. And there is a widely prevalent popular belief that syphilis is never entirely cured, and not a few physicians entertain this opinion.

My belief is that syphilis is one of the positively curable diseases, and I know of no malady the symptoms of which yield more kindly and certainly to proper treatment. Indeed, I believe that bad treatment and exaggeration of statement are largely responsible for the fearful reputation this disease has acquired for violence, malignity, and obstinacy. At the same time I must admit that, in extremely rare instances, cases may be encountered which defy all treatment.

Prognosis is most favorable in children, and the younger the better are the chances.

Next to children women are most satisfactorily treated.

Young men stand next in point of curability; the older the patient is, the less is the likelihood of permanent cure.

How we may know when our patients are cured of syphilis is a question impossible to be satisfactorily answered in the present state of our knowledge. I consent to patients marrying after twelve months of freedom from

syphilitic manifestations, if they have previously undergone a thorough course of mercury and potash. At the same time I warn them that the only proof of cure is immunity from the symptoms, and that it is possible that, either in himself, his wife, or his offspring syphilis may crop out. But if the disease returns it almost always yields speedily to treatment; and if the wife or child get it, they, as a rule, quickly recover.

I hope I may not be understood as advising syphilitics to marry. It would be safer and far better for the race if all syphilitics, consumptives, rheumatics, epileptics, and all others not indisputably sound, could be prohibited the privilege of procreation. But since such people will marry, we should give them all comfort possible within the bounds of truth.

Selections.

A Plea for the Early Use of the Aspirator in Pelvic Cellulitis.

By JOHN A. OCTERLONY, A. M., M. D., Visiting Physician to the Louisville City Hospital, Louisville, Ky.

According to the purport of this paper, the treatment of pelvic cellulitis may be conveniently regarded as two-fold in its character—its object being either to diminish the intensity and extent of the existing inflammation, or to rid the patient of the products and effects of this morbid process. The treatment, then, consists of certain measures, applicable before suppuration has begun, and of certain other measures, properly instituted only after suppuration has been established. I propose here to call attention to only one of the latter measures—*the aspirator*—and to advance arguments and facts in favor of its earlier use in pelvic abscess than has formerly been the rule.

The plan generally recommended by authors, and adopted by physicians, is either to leave the abscess to rupture spontaneously, or to wait until there is distinct fluctuation, and the abscess points, when it may be opened with the knife without difficulty or danger. This rule of practice I followed until nearly five years ago. Since

then, I have treated eight cases of non-puerperal pelvic cellulitis, in which suppuration had commenced. Some of these I treated alone, and the others in consultation. In two of these, spontaneous rupture of the abscess had already occurred when first seen by me. In all the other six cases, the aspirator was used, and all recovered. On comparing tne earlier cases with the more recent ones, I find that the latter, in which the aspirator was used, have given better results than the former, in which the abscess ruptured spontaneously, or was evacuated by means of the knife. This favorable experience has induced me to regard the early use of the aspirator as an important improvement in the treatment of pelvic cellulitis after the suppurative stage has set in. The advantages of this plan of treatment appear to me to be:

1. *It is attended with very little pain.* Therefore it is not necessary to bring the patient under the influence of an anæsthetic, unless she is exceptionally nervous or ex citable.

2. *Ease of application.* The introduction of the aspirator needle, even when the abscess is seated high up in the pelvis, or lies at he brim, is accomplished with great ease, and never requires the aid of a speculum, as when the bistourie is used.

3. *Marked and immediate relief from pain and pressure symptoms.*

4. *Reduction of fever.* This is always a desideratum where fever runs so protracted a course as it does in this disease. Immediately after aspiration, there may be a temporary rise of temperature; but this is speedily followed by a marked fall of much longer duration, and which may prove permanent.

5. *The operation is slight and entirely free from danger, and may, therefore, be repeated without hesitation whenever evacuation is needed.* This much cannot be said for the knife, even when the pus lies near the surface, and an incision is made per vaginum or per rectum. Simpson mentions cases in which, under such circumstances, serious hemorrhage ensued.

6. *With the aspirator the point of opening is determined by the operator instead of being left to chance.* At first this may appear of little or no importance, but it is far from being so. Dr. Savage, reporting the points of opening, spontaneous and artificial, in 19 cases of pelvic

cellulitis, shows that not a single death occurred when the abscess opened on the external integument, or into the vagina, but all the fatal results took place when it opened elsewhere.

7. *The danger of rupture into the peritoneal cavity is averted by the early use of the aspirator.* It has been urged as a reason for non-interference in these cases that rupture into the perineum is a very remote possibility.—Schroeder remarks: "If suppuration has commenced, it is unnecessary to take any pains to find the pus, since the abscess is not apt to perforate into the abdominal cavity, but generally breaks at some favorable point." Such teaching I believe to be erroneous and dangerous. Three out of Dr. Savage's nineteen cases died from rupture of the abscess into the peritoneum. I have myself observed two such results, and have heard of similar results in the practice of others. Rupture into this cavity is, therefore, no imaginary but a very real danger. *Evident pointing of the abscess toward a favoroble locality, like the external integument, or the vagina, does not* confer safety upon the patient against internal rupture. The truth of this is forcibly illustrated by the following case related by Sir James Y. Simpson, in his work on "Diseases of Women," pp. 251 and 252:

"I feel perfectly sure that in any case it is better carefully to watch the progress of the suppuration, and to take it into your own hands, to make a proper artificial opening for the discharge of the abscess, in a safe and suitable situation, than to leave the guidance of it to nature, and to run the risk of seeing the purrulent collection burst in some dangerous or disagreeable locality. By making a *prompt* and judicious opening into a pelvic abscess, you may even in some cases save your patients' lives. One of the earliest cases of pelvic cellulitis that I saw, occurred in a patient whom I watched in the lying-in hospital, along with Dr. Ziegler. The inflammation had extended down lower than usual, to the cellular tissue lying between the rectum and the vagina, and had led to the formation of an abscess which had begun to point towards both of these canals. Such was the state of matters one day when we examined the patient; and we both decided that it was of no use to make an artificial opening, as it seemed certain that the matter must speedily find an exit for itself, either into the canal of the rectum or the

vagina. And certainly within four and twenty hours from the time we made our examination, the abscess did burst; but we found to our dismay that, instead of opening on one of these mucous surfaces to which it pointed so distinctly, the abscess had burst into the peritoneal cavity, where the effused pus had given rise to intense irritation, and lighted up a peritonitis that proved rapidly fatal."

8. *The extent of the abscess and the disorganization of surrounding tissues can be much diminished by the early use of the aspirator.* It is true, pus may re-accumulate and render it necessary to repeat the procedure several times. In one case, I tapped a pelvic abscess three times, and in another case, after repeated aspiration, it was necessary to establish permanent drainage. But, if the correctness of my previous argument be admitted, it follows that such repetition is not to be dreaded by either operator or patient.

9. *The duration of the illness is shortened by the use of the aspirator.* It is difficult to speak with absolute certainty on this point. But I am sure that my earlier cases ran a more protracted course than those more recently treated, in which the aspirator was used as soon as I could make out the presence of pus.

10. *Complications, such as metritis and peritonitis, are not so likely to arise.* Sequelæ, like disorganization of the ovaries, chronic sinuses, permanent displacements of the uterus, etc., are not likely to be so serious when the aspirator has been used early in the suppurative stage. Certainly the most formidable complications were observed by me in those cases where evacuation had been delayed until very late, or was not resorted to at all—spontaneous rupture effecting a tardy and incomplete removal of the pus.

How early shall aspiration be performed? I would say as soon as the presence of pus can be made out. The faintest sensation of fluctuation or bogginess of the fornix vaginæ indicates the immediate use of the aspirator. The objections made to the too early use of the knife do not hold good against the aspirator. It has been said the abscess must not be opened too early, because there is usually more than one collection of pus. If the case be left to itself long enough, these several accumulations will coalesce, so that one opening will suffice to empty them.

If the knife be used too early, the operation will have to be repeated; if it be delayed, the tissues lying between the pus and incised surfaces are broken down, and the formation of sinuses will be prevented. Too early incision may be wrong; it may be painful and dangerous to the patient—difficult and troublesome to the practitioner; but the early use of the aspirator is neither the one nor the other. If resorted to before the multiple collections of pus have merged together, the suction of the instrument will promote such an event; and this I have witnessed myself more than once. The breaking down of tissues intervening between the abscess and the surface, the destruction of neighboring organs from pressure and implication in the inflammatory process, are evils, and the early use of the aspirator tends to prevent them.

My experience teaches me that pus burrows, and sinuses form more frequently when the abscess empties spontaneously, or is opened late, and that it is especially in these cases that sinuses become chronic and are most difficult to cure.

Method of Operating.—As a preliminary measure, the patient's bladder should be emptied by means of the catheter, and the rectum should be cleared with an enema. This is a precaution of sufficient importance to be insisted upon, for a neglect of it has led to the wounding of the bowel or bladder. West (*Diseases of Women*, 2d ed., p. 320) relates a case where the trocar entered the bladder through the firm and œdematous vaginal wall; the accident fortunately was not followed by any bad consequences. Other instances of like mishaps have been related to me by friends. If the aspirator is used, the danger of such an occurrence is much lessened.

The patient should be placed across the bed, in the position for applying the forceps, the buttocks brought down to the edge. An assistant takes charge of each knee; a third should steady the abdomen, although the inflamed mass is usually quite fixed and immovable. The operator, seated in front of the patient, introduces one or two fingers of one hand into the vagina, locates the lowest point of the tumor, and directs the point of the needle, which is quickly pushed into the purulent accumulation with the other hand. A fourth assistant, meanwhile, works the air syringe until all the pus has been slowly drawn off. It may be necessary to partially withdraw the needle or to

plunge it still deeper into the swelling, or to turn the point in different directions before the pus cavity is found. It should not be forgotton that the employment of the aspirator is an exploratory as well as a curative measure, and that, if recourse to it has been premature, and no pus is found, its use is not likely to do any harm. But if suppuration has begun, the use of this instrument will prove of great benefit to the patient.

I believe that, as the aspirator becomes more generally employed, the profession will freely admit all that I have alleged in favor of its early use in pelvic cellulitis.

Specialism in Medicine.

Prof. Frank H. Hamilton, in a recent address before the alumni of the medical department of the University of Buffalo, touches upon the vexed question of specialism in medicine. True to the instincts of the accomplished surgeon he arrays himself in opposition to the practice, and of course advances some very cogent argument in support of his position. The question of the demand for or usefulness of specialties is certainly one of much interest to the profession, and admitting of much argument *pro* and *con*. Does an undivided attention to a special organ conduce to the best interests of the patient and to the consequent advancement of science? At first glance the affirmative of this question would seem to be unquestionable, but a more serious consideration of the matter tends to the creation of some doubt. There are reasons why the general rule that success is most likely to follow concentration of aim and purpose should meet with an exception here. Intimately and deftly inter-dependent as the various organs are, it is impossible to regard any single one to the exclusion of all others. Although our specialists repudiate any tendency to do this, they nevertheless tend in that direction. It is one of the infirmities of the human mind that leads them to do so. To listen to or to read the discussions of an ophthalmological congress, one would almost suppose that the eye is the organ *par excellence* of the body. A gynæcological society, on the other hand, would lead one to suppose that the uterus is the grand center toward which all the other organs gravitate and around which they revolve.

Prof. Hamilton aptly refers to this tendency:

The human system is a wonderfully complicated machine. No one part is independent of the other; the heart suffers with the brain and the brain with the heart; the nerves and arteries are distributed and woven into every part of the fabric; and while it is necessary for the physician to study every organ in detail, it is equally necessary that he should study it as a whole, when all the parts are put together and are in motion.

The specialist discovers a pimple in the ear, and, limiting his observation to what the tube of his otoscope discloses, he fails to discover that there is a pimple on the nose also; and he does not, therefore, recognize the fact that the pimple in the ear implies a fault in the general system, nor that, while it may contribute to the comfort of the patient to extinguish the pimple by a local application, it is sure to be followed by another here or elsewhere, unless the remote or constitutional cause is removed. The outward sign may be blotted out, but the latent poison still courses through the veins undisturbed. Specialists will no doubt admit the truth of this general statement as to the constitutional origin of many local maladies; and they may perhaps consider it an unjust imputation upon their good sense that I venture to question their judgment and their practice in this particular. Then they must hereafter speak in a way not to be misunderstood. I read their reports of cases; I listen to their discussions, and I have frequent occasion to observe their practice, and I notice constantly that they give very little attention and credit to general treatment as compared with local treatment. I have listened an hour to the discussion of a proper treatment of trachoma,—granular conjunctivitis,—conducted by eminent ophthalmologists, in which a variety of local applications were considered, and their comparative value carefully estimated, but not one word was said about general treatment or hygiene. Yet every practitioner knows, and perhaps they knew also, that in nineteen cases out of twenty, if not in every case of this form of chronic disease, and probably in the vast majority of all chronic diseases, their existence depends wholly upon a general dyscracy, and that while local medication may be useful, it is by no means an essential part of the treatment. It is sponging out a wound to stop hemorrhage, and neglecting to tie the

artery that supplies the blood; it is Mrs. Partington again mopping the Atlantic from her door-step.

There is, I observe, a natural and a most irresistible tendency in specialism to attach undue importance to the local lesion, and to put it in the relation of cause, when it actually stands in the relation of effect. To resist this tendency specialists need, first of all, a complete knowledge of medicine and surgery as a science, and from this specialism must come as a natural outgrowth. No man can become an ophthalmologist or an aurist by a study of the eye or ear alone. All of our really great specialists were at first general practitioners, who, having attained distinction as such, became afterwards, by gradual and almost insensible departure, specialists. Even then the habitual limitation of the vision is liable, eventually, to narrow the breadth of their horizon. In short, gentlemen, specialists need help from the general practitioner quite as often as the general practitioner needs help from them, and, in my opinion, much oftener. In addition to the opthalmoscope, otoscope, laryngoscope, stethoscope, microscope, and many other useful instruments of this class, for which we must acknowledge our indebtedness to them, they need a telescope, and a wider-scope—aids to vision most often found in the hands of the general practitioner.

We have seen several deplorable instances of failure on the part of specialists who have, *ab origine*, confined themselves to their chosen organ. Specialism should be regarded as a higher department of medicine, whose ranks should be recruited only from the rank and file of the general practitioner, and we have come to regard with suspicion the young man who enters upon the study of medicine with the single aim of embarking as a specialist.

There is, moreover, another view of the matter. The success which a few specialists have achieved has vested the practice with many attractions, and as a consequence the supply bids fair soon to exceed the demand. The fact is apparent that the field left for the specialist after the general practitioner has been over it, is comparatively a limited one. There is a feeling in the intelligent general practitioner (it may be a conceit) that he is competent to attend to much of the work which the specialist looks upon as legitimately his spoil, and we have known an occasional old fashioned family physician to do some

very creditable work without making much noise about it. The specialist is a very convenient individual to have around in an emergency, but for his own interest there are now-a-days too many of his kind in most cities; and until the different organs have been properly assigned, each to the care of its special guardian, we would advise the young man who fancies he sees a fortune in any particular part of the body, to take down his chart, take new bearings, and reconsider his calculations. As yet the *role* of the general practitioner promises the greatest certainty of success.

Meniere's Disease.

We condense the following from an article in the *Proceedings of the Medical Society of the County of Kings, N. Y.*, by J. C. Shaw, M. D.:

In 1861 Meniere called attention for the first time to a group of symptoms which he had observed in inmates of the Deaf and Dumb Institution, of which he was Director. From previously well-known physiological experiments on animals, he was led to infer that these symptoms were the result of a lesion in the labyrinth. The patient which I desire to prəsent to you suffers from these symptoms.

The disease has passed from the range of aural surgery into general medicine, and has recently occupied the attention of neurologists, for the reason of its implication of of the auditory nerve, and from the very curious symptoms which are present, and which, to a great extent simulate other lesions proper to the nervous apparatus.

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Tinnitus is present in all cases of Meniere's disease with more or less intensity, and is described as a variety of sounds—hissing, buzzing, the noise of surf, discharge of musketry, etc.

Tinnitus is not always present at the beginning of an attack, but comes on and is always present at some period of the disease in the advanced stages of the disorder; when deafness becomes complete, the tinnitus usually ceases.

Vertigo is a symptom always present; in the large proportion of cases it is present only in paroxysms, and

coincides with violent tinnitus. In my own patient the vertigo came on, as is usual, in a paroxysm, but now is present whenever he moves.

In a case related by Prof. Charcot, in his lectures on Diseases of the Nervous System, the patient had vertigo always, even when lying down; but which was made much worse by the slightest movement, either of the bed or the shaking of the floor as some one walked in the room. Vomiting or nausea occurs in most of the cases, and comes on with the paroxysms of tinnitus and vertigo.

The disorders of equilibrium are various. Some patients have a sensation of being turned to the right or left side; some feel as if they were being pitched forwards or backwards; some patients, during the attacks, fall and lose consciousness, and are not unfrequently taken for epileptics.

One patient I had the opportunity of seeing, stated that he had a feeling as if something was going 'round in a spiral direction; when the apex of the spiral was reached, he would lose his balance and fall, if unable to grasp some object.

In a case of Prof. Charcot's the lesion affected principally the left ear; the direction of the reeling was principally forwards; sometimes it was backwards; and occasionally there was a sense of rotation in the vertical axis, always from left to right.

The loss of equilibrium in my case is the most marked symptom, and is always present whenever he moves, which is usually not the case, the interference with equilibrium being only at the time of the paroxysm. There are certain functional disturbances of the labyrinth, which cause symptoms corresponding to those of Meniere's disease. They may be caused by irritations in the cochlea; to impactions of wax pressing on the membrana tympani; to syringing the ear violently; to injections of caustic fluids in the middle ear. Brown-Sequard, in his lectures, speaks of the Duke of Wellington having been the subject of such a vertiginous attack from having a caustic solution injected into his ear by a quack.

And now we may ask, What is the explanation of these curious symptoms?

The experiments which led Meniere to infer that these symptoms were due to a lesion in the semi-circular canals were first performed by Homens, and afterwards confirmed

by Longet, Brown-Sequard and Vulpian. Homens found that when the membranous sacs contained in the osseous canals of the labyrinth were divided, very remarkable disorders of equilibrium occurred, which varied according to the canal divided.

When the horizontal canals are divided, rapid movements of the head from side to side in the horizontal plane takes place, and the animal tends to spin round in a vertical axis. When the posterior or inferior vertical canals are divided, the head is moved rapidly backwards and forwards, and the animal tends to execute a backward somersault head over heels; when the superior vertical canals are divided, the head is moved rapidly forwards and backwards, and the animal tends to execute a forward somersault heels over head. When all the canals are divided, the most complicated disorders of equilibrium occur.

The disorder of equilibrium in this disease is such a very prominent symptom, and in my patient unusually so, that it is worth while to stop for a minute and consider what goes to constitute the mechanism of equilibrium.

How is it that we are able to appreciate the least alteration in the position of our bodies. We all know the rapid movements that are made to restore the equilibrium when one is about to fall, movements which are too rapid to have been guided by consciousness. The apparatus of equilibrium, if I may so speak of it, consists: 1. In an afferent or sensory apparatus, with its terminal apparatus for the reception of impressions; 2. Visual impressions; 3. Labyrinthine impressions; 4. Muscular sense; all having their co-ordinating centre in the mesencephalon and cerebellum. * * * * * * * * *
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From what has been said, it is not difficult to account for the most prominent symptoms in this disease. There are, however, a few peculiarities which my patient presents which deserve a brief analysis. The rule is to have vertigo coinciding with the paroxysmal tinnitus, and nausea or vomiting. At a certain stage he had these symptoms in their characteristic form; but now he has vertigo and loss of equilibrium whenever he moves. Why? It will be remembered that in animals, when only one set of semi-circular canals were injured, after a time the other set either took on a compensatory action, or the organism became used to the change, for the symptoms

disappeared; when both sets were injured, the disorder of equilibrium persisted.

In this man both sets of semi-circular canals are diseased, explaining the persistent disorder of equilibrium. The faster he walks, the more aggravated his symptoms become, owing to the greater disturbance of the labyrinthine fluid; this condition is just the reverse of that in locomotor ataxia, where the faster the patient walks, the better and steadier he can walk.

He says that whenever he is walking straight ahead, if he looks to either side his vertigo and disorder of equilibrium become very great. I am inclined to think that whenever he looks to one side he also turns his head, and in that way gives a still additional alteration to the state of the labyrinthine fluid, which makes the already existing confusion still greater; it is quite possible, however, that this increase of symptoms may be present when he does not move his head, but only his eyes, as this very alteration of the position of the eyes may make the disorder of equilibrium greater, as we know that the disorder of equilibrium is very largely due to the discord between the correlation of the visual and labyrinthine impressions.

It is quite clear in this case, from the loss of impressions to ærial vibrations, that the cochlea must be the seat of lesion, as well as the semi-circular canals.

Knapp lays great stress upon the alteration, in these cases, of the power of detecting certain musical sounds. The twitching of the legs which this man has suffered from, and the numb feeling in his hands, do not belong to the lesion of the labyrinth, but are due to a commencing lesion of some kind in the spinal cord.

The existence of vomiting in these cases has led to ingenious theories to explain its connection. It is supposed by Hughlings Jackson, from the known proximity of the nucleus of the vagus and auditory nerves, that in some way the disturbance is propagated to the pneumogastric.

Ferrier, however, appears inclined to think that possibly the pneumogastric has some part to play in equilibrium, at least, in animals. for he says that it is a well-known fact that in the Felida, who have such exquisite powers of equilibration and co-ordination of movements, have large numbers of Pacinian corpuscles in their mesenteric plexuses. These corpuscles are also found in man, but

to a much less extent, and it would appear probable that these bodies are for the purpose of conveying to the encephalic centres the condition of pressure in the viscera. This view of the office of the Pacinian corpuscles in the mesenteric plexuses is a very ingenious one, and appears very plausible. Whoever has examined these bodies in cats must certainly have been struck with their enormous size, and wondered what possible office such powerful sensory terminal apparatus can have to perform in the abdominal cavity of a cat.

The vertigo, which is dependent upon a distressing form of dyspepsia, is well known to all of us, and, according to this view, would appear to be brought about by the irritation of the terminal ends ot the pneumogastic, causing disorder in the centres of the medulla, rather than to alterations in the circulation, as is usually supposed.

There are many disorders and irritations of the abdominal viscera, which produce vertigo, but which cannot be considered here.

Pathology.—A few post-mortems are recorded. In these, disease of the membranous labyrinth was found of an inflammatory nature. We are, however, able, in a number of cases, to make a provisional pathological diagnosis, as it appears very probable that we may have these symptoms produced by:

Hemorrhage into the semi-circular canals, one or both.

Meningitis, due to extension from a basal meningitis.

Fractures of the temporal bone through the petrous portion.

Syphilitic disease.

Biliousness, and its Treatment.

This is the title of quite an interesting paper, by Dr. Fothergill, in the *Medical Times* of June 23. In discussing treatment, Dr. Fothergill remarks as follows: The medicinal treatment of biliary disorders next claims our attention. And it may be well to consider first that form of malady known as a bilious attack, and to which dark-complexioned persons of the biliary diathesis are most subject. Rarely do persons of other diathesis and fair persons suffer from those disturbances which may fairly

be said to be connected with the presence of bile acids in excess; while as to those forms of biliary disturbance where the urine is laden with lithates—the condition Dr. Murchison calls lithæmia—persons of other diatheses seem equally liable to them, and they are found in fair and dark people alike. For those bilious attacks, then, which occur chiefly in those of the bilious diathesis, nothing is so good as alkaline saline purgatives taken in some vegetable infusion immediately on getting out of bed in the morning. This should be washed down with some warm fluid which excites the peristaltic action of the bowels, and, if necessary, a vegatable laxative pill should be taken the night before. After a couple of liquid motions, the more copious the better, the bilious person feels pretty equal to the day's work before him. Rochelle's salts, with a little sulphate of magnesium in infusion of buchu, form a most excellent morning purge, in my experience. Sir Joseph Fayrer has found, in his Indian experience, sulphate of magnesium with quinia or gentian, sufficient to produce two or three loose motions, an efficient measure in biliary congestion. Even with miserable anæmic individuals such purgation is necessary, and must precede all attempts to give chalybeates. Bilious persons, somehow, do not do well with iron. Iron may improve the oxidizing processes in persons ordinarily, but it does not suit persons laboring under biliary disorder; and Sir Joseph Fayrer found it did harm rather than good to anæmic subjects until the purgative plan had been thoroughly followed out, and the liver unloaded, as it is said. Even then purgation is to be maintained to a moderate extent. As long as there is a bitter taste—probably due to taurocholic acid—in the mouth in the morning, the purgation must be continued.

A very important matter in the treatment of biliousness is the question of the administration of mercury. In an ordinary bilious attack a mercurial pill is almost essential, and often free purgation without a mercurial leaves the condition unrelieved until a mercurial is given, when all goes well. This fact is well known clinically. The apparent conflict between this fact and the results of experimentation—that mercury reduces the secretion of bile by the liver—has troubled many persons, but really there is no difficulty in the matter. Mercury sweeps away the bile in the upper bowel, and so brings away

bilious stools, especially when an excess of bile is circulating in the intestino-hepatic circulation. Such an action reduced the amount of bile passing out of the gall-duct in animals experimented upon, because it removed the excess of bile going round and round, and thus, apparently, checked the secretion of bile by the liver. Mercury is then a true cholagogue, and its threatened disposition is now averted. Dr. Murchison thinks, too, that mercury has an action in inducing disintegration in the liver, as it helps to remove growths, notably syphilitic gummata and effused fibrin, by rendering the material more easily taken up by the lymphatics. This is a very ingenious suggestion. Certain it is that mercury gives great aid to a liver which is in difficulties, and it is equally certain that if persons who suffer from biliary troubles take, or have taken, mercury freely, it is impossible to treat them without a little of that agent. It is well, though, to keep the amount low, and to give a pill containing a little mercury at bedtime, and follow it up with an alkaline purge in the morning. It is pretty apparent, from clinical observation, that mercury is rather indicated when there is an excess of bile acids present. In cases where there is abundance of lithates it does less good, and is apt to do harm if the kidneys are not in their integrity. It is not unimportant to remember this. In all forms of biliousness, too, there is defective oxidation, and mercury and alkaline-salines are often more useful even to patients suffering from co-existent debility and anæmia than mineral acids and quinia, "the strength, flesh, and color returning under what, at first sight, might have appeared a lowering treatment." Here I entirely agree with Dr. Murchison; and even after mineral acids and tonics are admissible, it is well to maintain the morning purgation. Iron rarely suits these patients, and should be withheld until the liver is once more acting efficiently and has thoroughly recovered its tone. Perhaps of all tonic agents strychnia is the one best adapted to the bilious. It greatly relieves the depression, and it is well to combine it with nitro-hydrochloric acid.—*St. Louis Med. Journal.*

On the Diagnosis and Treatment of Headache.

By WM. H. THOMSON, M. D., Professor of Therapeutics and Materia Medica in the Medical Department of the University of the City of New York.

[Reported for the *Medical Record.*)

GENTLEMEN:—The history of the case before us is as follows: Two weeks ago to-morrow this man was obliged to cease work on account of a severe headache. The pain continued throughout the entire twenty-four hours, but was rather worse in the afternoon. It was so severe that he did not sleep well. He had no nausea; there was no disturbance of vision, and he never had a headache which prevented him working, until the present attack. You will notice that his face presents a peculiar yellowish tinge; he is slightly jaundiced. The yellowish streaks run off from opposite angles of the eyes, and similar lines run towards the mouth in a manner peculiar to malarial jaundice. He lives in a malarial region, but has not had well-defined intermittent fever. There is no evidence of specific disease.

HEADACHE AS A SYMPTOM.

Headache is a symptom and not a disease. The difference between a symptom and a disease is simply this: disease means a morbid condition, while a symptom is evidence of the presence of that morbid condition. The one, however, is frequently mistaken for the other. Pain, at all times, is a symptom, and never a disease. Because headache is a symptom, do not undertake to prescribe for it alone. You will frequently be called upon to prescribe for a headache, but you should remember that it may be a symptom of a large number of different conditions of the body, and should not be the only thing aimed at when remedies are ordered for its removal.

Although headache may be a symptom of so many conditions, there is a way to classify them. *First:* We have headache which is due to *organic* trouble. In a great majority of cases, however, headache is not due to organic trouble, but is of a functional character. A functional headache is never steady; it rarely lasts more than twenty-four hours, and its visits are occasional, so that it is marked by perfect intermissions, no matter how frequently it recurs.

One of the striking features of an organic headache is, that there is a continuous sense of discomfort about the head, although the intense severity may at times be modified. You should, therefore, when a patient comes complaining of headache, first determine whether it it is organic or not. There may be an intermediate class of cases between those in which the headache lasts only a few hours or a day, and those in which it is a symptom of organic trouble. These are the cases in which the headache is due to some speciffc fever, such as diphtheria, measles, small-pox, typhus, etc., or else to malarial poisoning. Such headaches are immediate between the functional and the organic. How are we to distinguish the headache dependent upon specific fever from the other varieties? It differs from the functional in the fact that it is more prolonged. The headache of a specific fevèr is also accompanied by a rise in temperature. It is frontal, and that is the characteristic of the headache of any one of these specific fevers.

Now, if a man comes into your office and says he has had headache steadily for four or five days, that he never had it before, look at his eyes to see whether they are suffused or not. They will usually be suffused, if the headache is a precursor of fever. Again, the headache is in the frontal region, and radiates across the top of the head, but is not usually felt behind. Then you will take the temperature and the pulse, which will probably enable you to determine whether or not the headache is symptomatic of some specific fever. In typhoid fever the pulse may remain normal for two weeks, and yet the case prove to be a severe one; in the other fevers this is not the case.

The other intermediate variety of headache is the malarial. This headache may continue from ten to fourteen days—even longer; it does not, however, usually last longer than two weeks. If this is the case, how are we to determine whether it is malarial or not?

As a rule, malarial headache either *remits* or *intermits*. It always sets in suddenly. It often commences at a certain hour of a certain day, and at the same hour of the following days it is more severe than at any other time within the twenty-four hours. A true malarial headache is as violent at its commencement as at any time during its course. In a large proportion of cases there will be

times when the patient has either decided chills or chilly sensations. There may be nothing more than the hands getting cold previous to the occurrence of the headache. It is usually frontal and sometimes felt on one side only.

But you may ask the question, is it not possible that the patient has organic headache?

In the first place, what do we mean by the term organic headache?

It is a headache dependent upon some organic change affecting the brain or its membranes, most commonly called the dura mater. As a rule, it is exceedingly violent. When you are called to see a patient who is suffering from a steady, violent pain in the head, so severe that at times he cries out on account of its severity, the presumption is that it is an organic headache. There are no headaches which will give you such examples of overwhelming agony as some of these cases. The pulse, if irregular, is a valuable confirmation of the diagnosis.

A steady violent headache, therefore, is one of the most prominent signs of organic headache, and I know of no way in which to remove it, except by the use of the iodide of potassium.

It matters not what the cause is; it may depend upon the presence of a tumor of the brain, or upon organic change taking place in the membranes of the brain; but do not use anything else until this remedy has been carried to the point of tolerance. You will know that the point of tolerance has been reached when the peculiar symptoms of iodism indicating an overdose of the remedy have been developed, and it may require thirty grains, or it may require three hundred grains daily in order to bring the patient up to this point. Iodide of potassium is of little or no use in the treatment of any other form of headache. You will often greatly assist the action of the iodide by a dose of ten to fifteen drops of ext. conii fl. and twenty drops of ext. ergotæ fl. Syphilitic headache, although organic, is not usually so violent or agonizing as in the case of tumor, by nocturnal exacerbations. It is often surprisingly relieved by mercury administered in a peculiar manner. Rub up one grain of calomel with sugar and divide it into *thirty* parts. Drop one of these powders on the tongue every ten minutes. Suppose, however, we have to deal with a malarial headache; the case before us, doubtless, belonging to that variety, how shall it be treated?

If you are called upon to prescribe for the relief of a symptom indicating mere functional derangement, avoid, if possible, the administration of more than one dose of medicine for that purpose. For example, we will order for this man twenty grains of quinine, to be taken about one hour before the expected increase in the severity of the headache. In the treatment of fever and ague, when there is an intermission, the remedy is administered upon altogether a different principle.

The administration of the quinine in this case, *i. e.*, fever and ague, should be preceded by a cathartic. It will facilitate its absorption. What is it that embarrasses absorption of quinine in these cases? It is gastric, supervening upon portal congestion, thus hindering the absorption. Quinine, morphine, and all the vegetable alkaloids, if they remain for much length of time in the alimentary canal, and are subjected to the action of the ordinary chemical fluids there, become so changed as to lose largely their special properties. These remedies, therefore, should be given upon an empty stomach. It is not unfrequently the case, as is well known, that quinine, on account of disturbance in the stomach, is not absorbed, even if it be retained. In such cases resort may be had to the hypodermic use of the drug. This man will be directed to take *twenty grains* of quinine each day for four days, then to omit two, on the fourth day to renew it again, and to report at the end of one week,

METHOD OF DIMINISHING THE DOSE OF QUININE.

Is there any means by which the effective dose of quinine can be diminished?

Capsicum combined with quinine will diminish the size of the dose requisite, and the same may be said of ginger and other aromatics. A good dose of capsicum combined with twenty grains of quinine will act as well as thirty grains of quinine without the capsicum. Spices in general stimulate the portal circulation, and promote the flow of bile, and hence their universal use in hot climates. There is a tendency on the part of quinine and capsicum to purge, and sometimes to purge violently. In such cases the purgative action is caused by the increased flow of bile produced by the capsicum. Ginger and quinine, when combined, do not purge, and it makes a very good combination. If the medicine is administered in form of pills, capsicum may be preferable, because of the less

bulk required; but, if desirable, the ginger may be given separately, and with the same effect as when combined with the quinine. The proportions should be one grain of capsicum to three of quinine; with ginger, one grain of each.

There is constant failure in the treatment of malarial poisoning by the use of quinine, and nearly always it arises from the manner in whicn the remedy is administered. The point to be obtained is the quick absorption of the quinine. Suppose, for example, you are called upon to prescribe in a case of malarial poisoning in which there is almost continuous vomiting, as in bilious fever. If there is gastritis present, there will be tenderness upon pressure at the pit of the stomach and in the region of the gall-bladder; there is apt to be some swelling of the epigastrium, and the patient vomits as soon as anything is taken. It is useless to administer quinine by the mouth under such circumstances, because the excessive irritation which it produces upon an inflamed mucous membrane causes its rejection at once. If injected into the rectum under the same circumstances, it will not succeed any better, because rectal absorption is diminished on account of portal obstruction.

Now, if you will apply two or three leeches at the epigastrium, the vomiting will be arrested almost certainly, and you will be able to get the quinine absorbed. Do not use either mustard or blisters here to arrest the vomiting, for they are vascular stimulants. Topical blood-letting, on the other hand, is a prompt vascular sedative.

Apomorphia.

This remarkable alkaloid is derived from morphia by the abstraction of the elements of water from the latter. Since its discovery by Mattheissen and Wright, in 1868, it has grown rapidly into notice and favor as a substance possessing singular physiological influence, with great promise of therapeutical usefulness.

M. Chouppe, from a series of carefully conducted experiments, has shown that apomorphia produces emesis through a different mechanism from tartar emetic, ipecacuanha, or its alkaloid, emetine. The conclusions were

that (1) ipecac and its alkaloid, however introduced into the system, occasion emesis by the direct irritation of the terminal filaments of the pneumogastric nerves in the mucous coats of the stomach; while (2) tartar emetic and apomorphia appear to have a double effect—acting on the gastric mucous membrane, on the one hand, and the medulla oblongata, on the other. Yet there is this difference between them: that the action of the apomorphia is exerted directly and more energetically upon the origin of the par vagum than upon the gastric mucous membrane, while tartar emetic reverses the proceedure. The proof is exhibited in the fact that emetic doses of tartar emetic are required to be larger when injected in the veins than when introduced into the stomach. With apomorphia, its maximum effect is induced by injection into the circulation (*Archives de Physiologie*, No. 1, 1875). Apomorphia, from the singular energy and unfailing promptitude of action (producing emesis within from 4 to 6 minutes); from the slight nauseant influence induced; from the transient character of the secondary effects, as drowsiness, giddiness, and slight weakness of the limbs; from the absence of the depressing effects which are attendant upon some other emetics; from the facility of its subcutaneous introduction into the system —these are characteristics which justly entitle its association with the most remarkable and useful accessions to modern materia medica, and well calculated to fulfill an important *role* in the province of therapeutics.

From clinical observation already recorded, apomorphia has proved a reliable and efficient remedy with a wide range of application. Dr. Wm. F. Duncan says that from his experience of the hypodermic use of the hydrochlorate of apomorphia, as an emetic for children, "its value cannot be too highly esteemed" (*The Medical Record*, Aug. 7, 1875). The average time at which emesis occurred was 2.9 minutes, which is much less than the period required by the yellow sulphate of mercury.

Its prompt and efficient action in cases of croup and capillary bronchitis, unattended by nausea and violent retching, makes it a great boon to children; and the ready applicability, by hypodermic use, in recalcitrant subjects who take medicine only after a long and exhausting struggle, constitutes it a remedial resort of incalculable value. In the polyclinic of Heidelburg, Dr. Jurasy, after

an experience of two years in cases of tracheitis and bronchitis, expresses great gratification at its efficiency as an expectorant. Minute doses, ranging from $\frac{1}{60}$th to $\frac{1}{20}$th of a grain, liberated the tenaceous mucus, and relieved the cough by copious expectoration.

In bronchial catarrh, Reigel (*Cyclopædia of the Practice of Medicine*, Ziemssen, Vol. IV) confirms its valuable expectorant qualities.

As an emetic in suffocative forms of tracheitis, in croupous bronchitis, and in bronchial catarrh, in which the impaired tone of the bronchial muscular tissues renders an elimination of the copious secretion difficult and inadequate, Riegel has found no agent comparable in promptness and thoroughness of action to apomorphia.

Juergensen and Hertz (*Cyclopædia of the Practice of Medicine*, Ziemssen, Vol. V.) have attested its satisfactory results in catarrhal pneumonia and œdema of the lungs.—*Clinic.*

Case of Puerperal Eclampsia.

By P. Chamberlain, M. D.

[Read before the San Francisco Medical Society, October 9, 1877.]

The patient, Mrs. H., was a primipara, aged twenty-five years; short, plethoric, and six months advanced in utero-gestation. On my first visit I noted the following symptoms: œdema of the face and hands, pain in the head and region of the stomach, and a general irritable and nervous condition. Suspecting albumen in the urine, I made the usual test, and found the urine *highly* albuminous. Prescribed sulphate of magnesia one ounce, and tartar emetic one-half grain, to be given in two doses, two hours apart. This acting freely upon the bowels, seemed to relieve the more urgent symptoms, and the patient expressed herself as feeling much better. The following day I was called to see her again, and while I was writing a prescription, she was seized with severe convulsions, occurring about every fifteen minutes, and from one to three minutes in duration. Comatose after the first attack. Moderate venesection (12 ounces) and other measures not relieving, chloroform was administered, and the fits partially subdued by it, though its *continued* influence was necessary to produce this effect. Four hours having

elapsed and the fits recurring with increased vigor whenever the chloroform was withheld; and fearing ill effects from the longer use of this anæsthetic, sulphuric ether was substituted with equally good effect, and continued until the cessation of the convulsions. Some thirteen hours subsequently, acting upon the belief that the pressure of the gravid uterus upon the kidneys was the primary cause of these symptoms, and fearing severe brain lesion, unless relief was soon given, I proceeded to produce premature delivery. Digital examination disclosed the os uteri rigid and closed. A recently prepared sponge tent was introduced, and upon its removal, two and a half hours afterwards, the index finger easily passed to the membranes. These being ruptured, I soon had the satisfaction of noticing slight uterine contractions, which, gradually increasing, terminated the labor nineteen hours after the first convulsion, and also happily terminated the eclampsia, with the exception of a few slight spasms. The patient continued unconscious for about four days, and had paralysis of the left leg and arm until the sixth day. Her vision was much impaired till the tenth. No albumen in the urine after the seventh day. She made a perfect recovery.

A few words relative to the probable cause of these convulsions would appear to be appropriate. Sir J. Y. Simpson, upon this subject, says: "Usually the state of albuminuria which leads to puerperal convulsions, is a transitory, morbid condition, from which the patient recovers within a few days after delivery; and the affection does not depend upon, or result in, any actual change of structure in the kidneys; and it may be that the premonitory œdema, headaches, etc., and the actual convulsions themselves, do not stand in the relation of effect to albuminuria or renal disease as a cause; but that *all* of these circumstances—the dropsy, the convulsions, and the albuminuria—are simultaneous or successive effects of some one common central cause, viz., a pathological state of the blood, to the occurrence of which pregnancy in some way peculiarly predisposes, probably from various acts of secretion, nutrition, and depuration being vastly increased and altered by conditions of utero-gestation."

This is certainly a very careful, comprehensive, and guarded opinion. Whatever may be the cause, whether

a morbid quantity of urea, casein or cretin in the blood, or those causes enumerated above, the premonitory symptoms are well marked; such as œdema of the face and hands, going on occasionally to general anasarca, with albuminuria and deficient renal secretion; and whenever these are noticed we cannot be too prompt with our antiphlogistic remedies against the supervention of puerperal convulsions. Saline cathartics, alkaline salts, diuretics, and antimony, are the remedies upon which we mostly rely. The renal secretion is generally greatly diminished; and I have found active diuretics apparently of great use. Authors tell us that albuminuria and its effects are far more common in first than in later labors, and seldom result in fixed granular disease of the kidneys. That the mechanical pressure of the gravid uterus upon the kidneys producing congestion and sometimes inflammation of these organs, and consequent abnormal action of the same, is the cause of albuminous urine, can scarcely admit of a doubt, inasmuch as this condition is most frequently met with in primipara, and disappears in a few days after parturition. The blood, deprived of its albumen, and retaining abnormally its urea, becomes a morbid stimulant to the nervous system, and convulsions result from this condition. The indication in the treatment, therefore, seems plainly to be to control the spasms until the uterus can be evacuated of its contents, and the pressure upon the kidneys removed.

After the reading of the paper, Dr. H. Gibbons, Jr., mentioned a case of puerperal convulsions to which he had recently been called, in connection with Drs. Fiske and Burgess. The patient was six months advanced in pregnancy when she was attacked. The two gentlemen named had applied the forceps, though the os was dilated no larger than a silver dollar. The forceps used by them were of a pattern which he had never before seen. The blades were not more than one and a quarter inches wide, and the curve was so great as to render their introduction difficult. But by perseverance, with prolonged tractile effort, the delivery of the child was effected. The os resisted so much, and for so long a time, that they would have invised it but for the cessation of the convulsions.

Dr. Grover referred to a case to which he had been called in consultation, and in which the os was incised in consequence of its persistent rigidity and the continuance

of the convulsions. The forceps used were of a peculiar character, being very narrow in the blades, and intended to be introduced together. They fitted together "spoon fashion," and after introduction one of the blades could be turned on the other, so as to lock in the proper position.

Dr. Gibbons, Sr., inquired of Dr. Chamberlain why the bleeding in his case had not been pushed further. It was his opinion that little good was to be derived from moderate bleeding in such cases. Where the measure was necessary, as he believed it to be frequently in puerperal convulsions, or in the premonition of them, the object cannot be accomplished without the most copious depletion. That being done, opiates and other means may be employed with much more benefit as well as safety.

Dr. Chamberlain answered that the bleeding was restricted to twelve ounces because of the change in the pulse, which lost its hardness and became soft.

Dr. Soule inquired whether cutting the rigid os uteri in labor was taught in the schools in this city, or either of them. It was rather a novel practice, and he had known some young practitioners to resort to it as if it were a trifling matter.

Dr. Simpson said it could only be justified in extreme cases, and to prevent laceration. He referred to the operation for laceration devised by Dr. Emmett, of New York, which consisted in paring the edges of the fissure and uniting them as in vaginal fistula. It was claimed that this proceedure restored the os to its normal condition, and prevented the uterine displacements otherwise resulting. Dr. Simpson, however, had not witnessed any very successful results from the operation, and had but little confidence in it.

Dr. Gibbons, Jr., had seen one case in which the operation was perfectly successful. It was pefrormed by Mrs. Dr. Brown, of this city.

Dr. Gibbons, Sr., entered his protest against incising the os uteri in any other than extreme cases, such as convulsions, or where the life of the patient was endangered by delay. The rigidity is systemic and not local, and it will generally yield to the liberal use of opiates. The use of opium or morphia as a parturifacient is but lately beginning to be appreciated by the profession.

Dr. Hoff, who occupied the chair as Vice-President, called the attention of the society to the dilators of Dr.

Barnes, as an effectual means of overcoming the rigidity of the os uteri. By first introducing the smallest bag, then in succession the two others, delivery could generally be accomplished in three or four hours. He had employed them several times with very satisfactory results.

Dr. Simpson had tried them some years ago, but they were always expelled by the first pain which followed their introduction.

Dr. Gibbons, Sr., suggested that they were not adapted to cases in which there were forcing pains, pressing the head down upon the os. At that stage other means are available. Nor were they adapted to cases in which dilatation had not commenced. They could only be used with facility and advantage where dilatation had commenced, and where there were no expulsive contractions. He asked Dr. Hoff how he would apply them before any dilatation had occurred?

Dr. Hoff said in that case he would first introduce a sponge tent, after which there would be no difficulty in inserting the smallest bag.

Dr. Soule called attention to the great difference between a sponge tent recently prepared, and an old one, the former being better beyond comparison.

CANCER OF THE LIVER.

Dr. Gibbons, Jr., exhibited, at the request of Dr. Plummer, a cancerous liver, taken from a woman who had complained of abdominal pains, and who exhibited a movable tumor, which had been taken for a floating kidney. The liver was enormously enlarged, weighing about nine pounds, and studded with nodules of encephaloid, some of which were as large as the fist. The middle lobe was elongated so as, in all probability, to have given the impression of a movable tumor.

Ulceration of the Os Uteri.

All acquainted with the practice of an out patient department for the direases of women, can not fail to have been struck by the very numerous cases of ulceration of the os uteri, presenting themselves for relief. The cases are so common, the distress of the affection so debilitating, the discomfort to married life so great, and the cure so within the limits of the ordinary practitioner,

that we hope to do good service by a few remarks on the subject. We shall classify the cases, dividing the os into three zones:

1. Ulceration at the os uteri, on one or both lips.
2. Ulceration extending to half the inferior part of the cervix uteri.
3. Ulceration involving the whole of the cervix and os.

1. Ulceration at the os uteri, on one or both lips. (*a*) Very many of these cases pertain to the newly married, and are undoubtedly the result of excessive venery. There is always a history of nausea or retching, back-ache, a white or muco-purulent vaginal discharge, some scalding on urinating, vaginitis or vaginismus, and constipation. An examination by speculum reveals an abraded surface, some discharge about the os, and more or less uterine congestion. (*b*) Other cases belong to multiparæ, who have had untoward labors, whereby the external os has been lacerated, and one or other lip has become inflamed and taken on unhealthy action. This condition is generally a bar to future pregnancy. In both classes cervicitis may be present. The lesion does not affect the cervical canal to any extent.

2. Ulceration extending to half the inferior part of the cervix uteri. These cases are very common, occurring in women who have difficult or many labors. Extraction of the child has divided the os into two portions, of which the posterior has been generally found to be the larger. There is a more or less free muco-purulent discharge from the vagina, and in addition to the symptoms enumerated under Class 1, the patient complains of a dragging pain in either one of the groins, with pain extending to the knee of the same side. On digital examination the finger readily enters the cervical canal, and ulceration is detected. Pressure on the uterus elicits pain; the fundus is somewhat displayed; the whole organ is invariably enlarged. The extent of the disease is not seen by the speculum, which tends to bring the divided parts together; hence the necessity of a careful digital exploration.

3. Ulceration involving the whole of the cervix and os. On exposing the parts the cervix is found to be inflamed, soft, tender, much enlarged. Cervicitis is marked. The os is generally round, the cervix is somewhat flattened at its free extremity, as if it habitually rested on the per-

ineum. This affection is usually noticed in old cases of prolapsus, in virgins and sterile women. The cause may be attributed to flexions, relaxation of the uterine ligaments, and excessive venery. In these cases the pain extends along the spine and shoots down to either knee. There is pain in nearly every position the body can assume. Care is required to discriminate between these cases and those of a malignant type.

General Treatment.—We can not too forcibly inculate the necessity of absolute rest in the horizontal position. By this means, congestion about the uterus is lessened, and the ulcerated surface prevented from impinging on any part. The diet should be liberal. The bowels should be kept well opened. All marital intercourse should be forbidden.

Medicine.—There being generally a state of anæmia to contend against, we would first recommend the vegetable tonics and cod liver oil, afterward the ferruginous preparations. Where any induration exists, iodide of potassium should be administered. It is essential to raise the tone of the body, as concurrently with its improvement, so the healing process will be expedited.

Topical Applications.—Much care is required in deciding whether to deplete or not, in choosing the form of caustic to be applied, and in prescribing an effectual injection. In all cases where the veins are prominent about the os, we would commence either by leeching or puncturing with the lancet. The latter we prefer. In cases of slight ulceration, touching the part with nitrate of silver or chromic acid, followed by a plug of cotton-wool steeped in glycerine, is generally effectual. Should the ulceration be obstinate, we would apply fuming nitric acid. The cotton-wool, saturated with glycerine, must be introduced daily. Where the lips of the os are divided, it must be concluded that the inflammation has extended along the cervical canal. In these cases the external os should be well burned with the caustics named; if necessary, the actual cautery should be employed; but the cervical canal must not be molested. These failing, plugs of iodized cotton-wool should be applied daily.—*Phil. Med. and Surg. Reporter.*

Microscopy.

Proceedings of the Biological and Microscopical Section of the Academy of Natural Sciences.

At a meeting of the Section, held December 3rd, this Report was read and accepted, and directed to be published.

The committee appointed by the Biological and Microscopical Section of the Academy of Natural Sciences, to make a report of the Annual Public Meeting of the Section, held November 19th, 1877, respectfully offer the following:

The hall and galleries of the Academy, and also the museum, were opened to the members and invited guests, and amply lighted *at the expense of the Section.* It is estimated that not less than 3000 persons, of both sexes, were present, thus attesting the fact that intelligent citizen will throng the Academy if proper inducements are offered.

The deep interest manifested in the subject of microscopy, and in its demonstrations, is believed to be on the increase among our educated citizens, and was an encouragement to the committee of arrangements.

Over 100 microscopes were on the tables, so placed in the hall and adjoining rooms, that observers could pass from one to the other as inclination or interest dictated. It will be noticed from this report that many makers of microscopes were represented at the meeting. They are enumerated as follows: Those made by Mr. Zentmayer were 46 in number. The first microscope made by him in 1857, and five of the American Centennial pattern, were exhibited. Beck, of London, was represented by 10 microscopes; Crouch, by 8; Queen & Co., by 8. These makers also had a large case of accessory apparatus, chiefly of Beck's make. Hartnack, 3; Nachet, 3; Ross, of London, 3, one an old and massive pattern of superior finish, and one the recent improved form; Gundlach, 3, one nickel plated; McAllister, Philadelphia, 2; Powell & Lealand, 1; Spencer, 1; Verrick, of Paris, 1; J. B. Dancer, Manchester, Eng., 1; George Adams, London, 1771, 1. There were also a number by unknown makers.

The objects displayed under so many instruments were necessarily very numerous, and they illustrated most departments of biological and microscopical work. In animal tissue, fine transparent injections of lung, kidney, villi, tongue, brain, etc., in sections, displayed the vascular distribution clearly and beautifully; and many of these sections were prepared by those who exhibited them. But it would be desirable in such work, if other parts than the vessels, such as the connective tissues, could be properly stained and demonstrated at the same time, This would involve some loss of transparency, but the educational value would be much increased. No preparation is *well enough* shown unless all its tissues are demonstrated. One lung section showed the capillaries filled with blood, each corpuscle clearly visible, and also the delicate epithelium lining the air-cells. The connective tissue walls of the air-cells were tinted just enough to render every thing visible. Sections of teeth, showing the germs of the deciduous and permanent ones, also the odontoblasts and nerve fibrils of the dentinal canals; sections of bone and of the retina revealing rods and cones, as clearly as osmic acid preparations can show delicate morphological elements; sections of spinal cord with ganglion cells, and the so-called axis-cylinders, in some nerve fibres.

In pathology, scirrhus, epithelioma, diseased liver, and lung tissue, were observed. The beautiful and justly-lauded preparations of Cole, were under some of the instruments, but it is undeniable that the finest morphological elements cannot be demonstrated always in these slides, and that is because the process of staining adopted by Cole is not the best. These celebrated English pathological slides often lack sharpness of differentiation of tissue, and their finish of white cement around a balsam mount, when exposed to the high temperature of American summers, may soften and run in. This style of finish was first introduced by members of this Section, but is now abandoned.

Among the lower types of animal forms many interesting and beautiful preparations were displayed. Stings and tongues of bees, whole insects rendered transparent to show the relationship of the external organs; some dissections, showing salivary glands and liver-cells of flies, silk-glands of spiders, gizzards of crickets, palates of snails, etc.

The blood circulation in gammarus and daphnæ, their living, striped muscles; living formica molestans (red ant), ubiquitous but minute pest of every house. Lepidopterous scales, arranged in splendid patterns, beautiful optical demonstrations of human patience; lasso-cells and filaments from Physalis; rotatoria and infusoria of many kinds.

Polycistina, corallines, foraminifera, etc., variously illuminated, all giving evidence of marked advance in preparation and successful display.

Many preparations and sections of double and triple staining in botanical work, in which all cell-contents and secondary deposits, nuclei, etc., were retained in situ, marking a great advance for the first time in this class of slides. Seeds, entire and in section; pollen, fungi and diatoms, isolated or arranged in groups and geometrical figures, and in situ, on marine algæ, were noticed as objects of great beauty.

The movement of living bioplasm in the cells of nitella and anacharis, and in some desmids, ever exciting wonder by its noiseless, tireless, torrent; absorbing, growing, multiplying; soft unfaltering architect of all organizations, weaving, under our lenses, in life's active but silent loom, the beginning and completion of vetebrate, insect, crustacean, mollusk, coraline, polycistina, infusoria, and the plant.

Doubtless many objects of interest and beauty were not observed by your committee, because of the difficulty of getting about in so large an assembly.

A novel and creditable feature of the evening, and one worthy of imitation, was a table occupied by lady microscopists, who handled their own instruments and displayed many beautiful slides of living and prepared objects, and some were illuminated by polarized light.

The committee deem an exhibition like this a fitting opportunity to record some observations on the microscopes which were in use during the evening. The great improvement in quality and reduction in cost of the simpler forms of microscopes is an attempt in every respect worthy of encouragement. But it is desirable that defective patterns and inferior work shall be excluded from this market. Quality always before cost. The microscope is an instrument of precision, and that is best which is best designed, and best made, and costs least.

We can report only those which were on exhibition. Beck's "Popular" is too popular for scientific use; it always shivers whenever it is looked through, and the plan of supporting the optical parts belongs to a past era in microscopical mechanics. The "Economic," by the same eminent maker, is defective, because a flat base will not stand steadily except on a pefectly flat table, and biological work is not done on marble tables. It is no advance for English makers to imitate the German and French in this particular. The *tripod* base is the only steady form for best results. If placed horrizontally it tilts over unless the base be loaded in front. The fine-adjustment is comparatively defective.

The same form of base was observed on that of Hartnack's, and the same objection applies to that maker's instruments.

Zentmayer's cheap stand is a tripod, and it is steady on any table; so are the same class of instruments by Powell & Lealand, by Ross, by Crouch, and by Gundlach, and they all sit steadly. Give these microscopes only room to touch the table with their *toes*, and they are firm.

Mr. Zentmayer had in use, during the evening, his pocket microscope, which can be folded up into a case 4½ inches long, 3 inches wide, and 1½ inches deep. When this microscope is in position for use, it stands 10 inches in height, and, having a perfect rack and pinion motion, and being made in the best manner, it is firm and satisfactory in use, and is exceedingly convenient for travelers, or, indeed, for all ordinary microscopic work.

Three instruments by Gundlach were on exhibition, and their general workmanship was good. The object-carrier is an admirable contrivance for the examination of prepared slides, but the worker would lay it aside and go down to the glass stage. The mirror bar swings on an axis nearly level with the stage, but only about 15 degrees of obliquity can be obtained, and no facility for registration is supplied. Doubtless this arrangement is original with Mr. Gundlach, for we don't know any maker who has anything like it. These microscopes all turn *below* the horizontal plane when near the position for drawing, and then the objective looks towards the star,—a useless facility in any microscope. The rack adjustment for coarse focus is defective—a lateral twist was evident in all the instruments. The fine-adjustment was similarly

afflicted, but in lesser degree. We take great pleasure in commending the lenses supplied with these microscopes by Mr. Gundlach; the $\frac{1}{8}$ immersion is most excellent for the price.

In view of the great improvement recently made in these cheaper forms of microscopes and the lenses supplied with them by American makers (and the observation applies equally to some who were not represented at the meeting) we say, without circumlocution, that the time has come to no longer go to London, nor Paris, nor beyond the Rhine for best work, but to demand American microscopes for American institutions.

Such meetings as the one just held make it apparent that a large amount of microscopical apparatus exists in our city. Some have asked why is it, then, so little biological work is done among us? From a sufficient acquaintance with the subject, we know that many industrious students are quietly and successfully working out, for their own education, microscopical problems of deepest interest, but, unlike some of our advanced and more demonstrative friends elsewhere, care but little to publish results.

In conclusion, we express the hope that the microscope may soon be found in every cultivated family, because it is the only means of acquiring a knowledge of things, as beautiful as they are minute, and which are hidden from all eyes except by its revelations.

CHAS. BULLOCK.
J. G. HUNT, M. D.
CHAS. SCHAFFER.

San Francisco Microscopical Society.

A letter was presented from Charles A Spencer, of Geneva, New York, which was received in answer to an inquiry about Spencer's objectives, by Mr. E. J. Wickson. Among other things Mr. Spencer writes: "From notices in the London *Microscopical Journal*, the American *Naturalist*, the Americal *Journal of Microscopy*, the Cincinnati MEDICAL NEWS, etc., it is quite evident your Microscopical Society is a live one, and a gratifying fact it is to all devotees of science. I would give a cordial expression to the hope that its future progress may fulfill

its present promise of being an honor to us all." In answer to the inquiry Mr. Spencer gave a description of a new series of objectives he is working up, in which he has it as a special aim to produce "a series of objectives, of quite moderate prices, yet of a high grade of excellence, and of such almost absolute uniformity of quality, that the purchaser need have no fear of disappointment in this respect." It is probable that the Society will have the opportunity of testing Mr. Spencer's new work.

Col. C. Mason Kinne exhibited the luminous larvæ of some more fully developed insect, which emitted at night, from the under part of the last two segments of the body, a very brilliant light, similar to that of the fire-fly of the Eastern States. They were found by C. S. Cap, Esq., on the ground, close by the flume near Pillarcitos Lake, in San Mateo county. The trio of glow-worms will be handed to Mr. H. Edwards for identification.

Mr. E. J. Wickson brought before the members a very interesting matter in the shape of some coffee-berries, which were filled with hundreds of active *acari*. He stated, as he placed a fragment of the berry on the stage, that there was received, some since, from Mr. Morris, the Liberian Commissioner to the Centennial Exposition, a number of capsules containing the ripened seeds of the well-known Liberian coffee. These were planted some weeks ago, and as they failed to germinate, he naturally desired to ascertain the reason, and removing some of the kernels from the ground and the outer shell, he found the substance of the coffee-berry in a soft and decomposing condition. The suspicious appearance of a mealy mass in one caused him to probe the matter further, and by means of the microscope he soon found that the interior of all the capsules were filled with a kind of *acarus*, which bore a strong resemblance to the sugar insect.

Under a two-thirds objective, the members could see the young and also the fully developed acarus, busily engaged in the pursuit of happiness, by absorbing the moisture from the decaying mass. As the berries had been some weeks under ground, there seemed to be considerable ground for conjecture as to how they had become ensconced in so fruitful a home for them. The acari having received some attention from Colonel Kinne, and the members being desirous of knowing more of the characteristics of this variety, Mr. Wickson handed a kernel to

the Colonel, for the purpose of a careful study of the minute parts, by which the species are identified.

Dr. Winter, who has just returned from an extended trip South, stated that the scale insect, and other pests which have received the attention of microscopists and entomologists, he has been able to remove from a hundred orange trees, which he selected for the purpose of the experiment from his grove at Orange, about seven miles from Anaheim, by a systematic and free use of whale-oil soap and water applied with a brush. The trees are a third larger than the others, and generally more thrifty from this system of grooming.

Col. Kinne alluded to a very pleasant microscopical reception given by Dr. S. M. Mouser, in his new lecture-room built in the rear of his dwelling, at 707 Bush street. Several of the members were present with their revolving tables and instruments, and the audience of friends were seated in groups, first at one, then passing to the other tables. Judging from the encomiums passed upon it, we think that this feature of gathering together half a hundred ladies and gentlemen, who are interested with the microscope and its revelations, might be made quite common, as it does away with the fatigue and annoyance observed at annual receptions of the Society, caused by a standing position when viewing an object. Dr. Mouser offered the use of the room at any time to any of the members for a similar reception of their friends, whereupon a hearty vote of thanks was tendered him for the courtesy.

Pineal Gland—Descriptive and Microscopical.

By S. P. Cutter, M. D., Memphis, Tenn.

This little body gland, or what not, is interesting as a microscopic study. The granular matter situated at the apex or lower end consists of groups of minute crystals, or hard bodies,—each granule generally consists of great numbers of microscopic globular crystals, or hard, dense bodies, arranged in circles from the center outwardly, varying somewhat in size in each granule; these also vary in size. They are hard—not easily crushed; they refract light strongly; are translucent, not transparent. They are extremely beautiful under the microscope, surpassing

anything I ever saw, more especially as polariscopic objects, giving viridescent tints of rare beauty.

This gritty matter, called acervulus, is said by anatomists to be composed of phosphate and carbonate of lime. What their functions are is not clearly understood at present, or those of the so-called gland.

Des Cartes thought the soul dwelt there—not a bad idea at that day and time. Magendie thought it closed the aqueduct of Sylvius, and thus cut off the communication between the third and fourth ventricles. Others regard it as a commissural body.

Is it not reasonable to conclude that the crystals, from their high refractive power, and their connection in the gland with the optic thalmi, have some agency in the function of vision? They certainly are not formed there as an accident, they must conserve some purpose. Some of the crystals are of a sky blue color, others are nearly white; to the naked eye they resemble minute grains of sand. The granules are made up of great numbers of minute globular *ocellæ*, or a conglomeration of these constitute the granules.

Receiving these under the instrument, circular striæ are distinctly visible, situated concentrically from the centre of each group at uniform distances apart to the circumference, in wave-like lines, being the sum of the striæ of each *ocellæ* which are separately striated. These striæ would suggest the idea of their concentric growth or development like the concentric layers of an onion or the layers of the crystaline lens; under the instrument they resemble a full blown rose somewhat. Some of the *ocellæ* are seen isolated—probably they become detached by mounting. One of these was quite large, oval or egg shaped, some are strongly marked, brown in color, not as translucent as others, and did not refract light at all. Besides these granules above described, there were other forms of crystals, numbers of table form or flat crystals, very thin, some regular and some irregular in outline, as though broken; there were three perfect elipsoid, smooth regular outlines; so thin and transparent as to be almost invisible, different sizes, though quite large. Some of the granules or groups of *ocellæ* appeared to be cracked across crucially, as though from shrinkage. Only two or three triple phosphates were seen, and very minute.

The general structure of the gland is cellular, rather

gelatinoid, the cells not very distinct. No true nerve cells could be distinctly made out, no blood vessels were visible.

On perusing different works on anatomy, physiology, and histology, I find very little said about this body, otherwise I would not trouble the readers ot the journal with my observations.

The specimen from which the above observations were made was from the brain of the late Dr. Charles A. Jourdan, who died from the effects of chloroform, the history of which has been published in the MEDICAL NEWS.

STUDENTS' MICROSCOPES.—There are quite a variety of microscopes of great excellence that, students and others desiring a microscope at a reasonable rate, can procure at small cost. These are quite sufficient for all ordinary work. It is only the professional microscopist who needs a more expensive stand than that of the student's stand, and finer lenses. Very nearly all the discoveries of the physiologist and pathologist have been made by instruments of less capabilities than are those that can be purchased to-day for $50 and less. There is no reason, therefore, why not only every physician, but every intelligent family, now-a-days, should not have a good microscope. There is nothing equal to a microscope for the purposes of education.

We have mentioned before the excellent instruments of the Bausch & Lomb Optical Co., varying in price from $20 to $200—the latter consisting of a large and most beautiful stand, with several very fine objectives and other accessory apparatus. Our subscribers should notice the advertisement of their Physician's Microscope.

Another most efficient microscope, and worth more than is charged for it, is Zentmayer's Histological Microscope. We have before described it. It has two good objectives, and is competent for all ordinary work. Its thin stage will permit of the greatest obliquity of light. This, as is well known, is quite a desideratum when it is desired to resolve difficult test objects with objectives of high angle of aperture. The fine adjustment will work with the highest and finest powers—price $50.

Mr. Schaurer's microscopes we have heard very highly

spoken of, but have never seen any of them. They are supplied with Hartnack's objectives, which is a guarantee that the optical parts are of a high order.

At another time we propose to speak of some of Beck's and Tolles' microscopes, and perhaps some others.

Correspondence.

Cincinnati, Ohio, Dec. 10th, 1877.

J. A. Thacker, M. D.;

Dear Sir—I have recently had a case which may be interesting to you. Geo. A., æt. 43, accidentally fell down a flight of steps. In falling he struck with his right eye upon some projection, either of the railing or of the steps, he does not know which. This produced considerable contusion of the lids and integument over the margins of the orbit. In addition to this, there was more or less contusion of the entire right side of the head. In a very short time there was so much swelling of the lids that the eye-ball could not be seen, and was followed by the usual discoloration and ecchymosis which is concomitant with such injuries.

Under an antiphlogistic course of treatment the swelling disappeared, when it was found that he had ptosis of the upper lid. He also had double vision. The object was seen in its proper position with the left eye, while with the other eye there was seen a pseudo-object, which was to the right and higher up. It was also indistinct, appearing as if seen through a mist.

This state of affairs would indicate that we had a paresis of some of the muscles, the ptosis being due to a paralysis of the levator palpebrarum. The eye-ball, according to the location of the pseudo-image, would be turned inward and downward, indicating insufficient contraction in the superior and external recti mucscles. At a distance of fifteen feet the objects were about four feet apart, the false being about three feet higher than the true object.

The tension of the eye appeared to be slightly increased. There was marked conjunctival congestion of the inferior palpebra. There was no circum-orbital congestion. The aqueous-humor was perfectly transparent, with a slight

decrease in the depth of the anterior chamber. The iris was dilated and did not reach to light. The field of vision, with the exception of being indistinct, was normal, as no interruptions or contraction could be detected. With the ophthalmoscope the details of the fundus could readily be seen. Nothing abnormal could be noticed. The veins were slightly dilated, and somewhat inclined to be tortuous. Vision was $\frac{4}{70}$.

He complained of cephalalgia and vertigo. The latter was so marked, that when he walked he would reel like a drnnken man, and unless he had a support would fall. He also complained of tinnitus aurium, which was especially marked in the right ear—but he had been troubled in a similar manner before receiving the present injury.

The effect of the blow caused a partial paralysis of the retina, or optic anæsthesia, in the case causing vision to fall to $\frac{4}{70}$ with Snellen's test types.

He was placed upon a tonic and alterative course of treatment, consisting of quinia, iron, strychnia and belladona, together with the iodide and bromide of potassium. Three weeks later there was considerable improvement. The pseudo-image at fifteen feet did not appear to be more than eighteen inches from the real object, and about six inches higher. At this time all medication was discontinued, except an astringent for the conjunctival trouble. By bringing his chin down upon the sternum and looking directly forward in a horizontal plane, objects were seen singly. They were also seen single in the left field of vision. The retina was rapidly regaining its sensibility, as he could now read number four (Snellen) at twenty inches. The iris still remained about half dilated, and did not respond to the stimulus of light. This was no doubt due to paralysis from the shock. The ext. of calabar bean was used, but the iris did not respond until after it had been used for more than a week. Then this medicine was discontinued.

Five weeks after treatment was instituted, he could, by closing the left, read newspaper print at a distance of eighteen inches with the right eye. The ptosis had entirely disappeared, and the iris contracted and dilated readily. However, he still had some confusion in reading, and looking at objects when they were viewed in certain directions. When first taking up a paper he could read very well for a short time, then the letters would become

blurred, and the space lines between the columns would appear to slant.

I think that time, with patience and practice, is all that is necessary for the muscles to regain their normal power of contraction. They contract properly at first, but soon become fatigued, and then gradually relax. He has no trouble to see or read with this eye when the left one is closed.

When walking he is sometimes troubled with vertigo; and if the road is uneven he has to close one eye, it makes no difference which, when the dizziness will pass away. He experiences the same difficulty when he attempts to stand and look directly upward. However, this sensation is passing away, as it is not near so marked as it was three weeks ago. I think in a short time he will have single vision in every direction, and the vertigo will be a thing of the past. Yours, respectfully,

W. R. Amick, M. D.

Translations.

Electricity as a Remedy.

By L. R. Peet, Baltimore, Md.

[Translated for the Medical News, from the German of Dr. Pierson.]

It has probably happened to many of our readers that the family physician, being consulted concerning a persistent neuralgia, or some other form of nerve disorder, has given it as his opinion that the sufferer ought to be "electrized." Generally the patient is not much edified by such advice; for at the simple mention of the word, there comes the more or less vivid recollection of the curious, and by no means desirable, shock experienced when taking part in illustrating the peculiar powers of the electric machine, at school; or at the fair, when curiosity proved victorious over that feeling of timidity common to the human breast in the presence of mysterious objects. Such reminiscences are not calculated to awaken the confidence of the public in the healing quality of electricity. Nevertheless, we cherish the hope that what we are about to lay before our readers will convince them that the

dread of an electric treatment is wholly groundless, in case the agent in question is applied by a skillful physician.

Before, however, we enter upon a direct consideration of our subject, we would state that so-called "magnetizing" has nothing whatever to do with the science of medicine in general, or with the electric method in particular. The latter rests upon well-known physical laws, while animal magnetism is merely a thing of belief, not of knowledge, and, therefore, lies entirely outside the limits of scientific discussion.

Taking into view the different sources of electricity, we will dwell a moment upon the invention of the mayor of Magdeburg, Guericke, in the year 1671. It consisted in producing electricity by means of a plate of glass rubbed with a piece of leather prepared for the purpose. By this process, as is now well known, the positive form of electricity accumulated on the glass plate, and the negative upon the rubber. On connecting either the rubber or the plate with the earth, the form of electricity not thus conducted away goes on accumulating, and can, by means of a wire, be made to pass through the human body. Our bodies belong to the list of conductors, though a far less perfect conducting material than metal. It is reckoned that the resistance offered by one average human body is twice as great as that offered by the whole of the Atlantic cable. From this it will be seen that the electric current must have considerable power of progressive motion, in order to overcome this resistance, which explains the violent commotion in our bodies, caused by the passage through them of the electric current produced by the process of rubbing.

A much more marked effect is brought about by the Leyden-jar. In this positive electricity is gathered on the inner surface, negative on the external surface of the jar. Either positive or negative electricity, being communicated to the knob in the neck of the jar, it is at once distributed over the inner surface, and, as a consequence, the opposite form is developed on the outside. The jar is now charged. A discharge is effected by forming a connection between the knob and the external coating, thus allowing the two kinds of electricity to unite. If the human body be made the means of forming this connection, the electric shock is felt, the violence of which depends

upon the extent of surface charged and the amount of electricity accumulated. Small animals can be killed by such discharges, and even men may be paralyzed,—indeed, death may ensue in case a battery of jars is used. In such fatal results the body exhibits exactly the same appearance as in cases of stroke by lightning.

For medicinal purposes, frictional electricity was, in former times, much employed; but, in consequence of the danger, and of the required precision of manipulation, it gradually ceased to be applied as a remedy in medical treatment. This resulted also from the much greater efficacy, and facility of application, of the two other forms about to be described.

The second source of electricity to which we will direct our attention, is that accidentally discovered by the Italian, Galvani, in the year 1789. By his process the electricity is accumulated by means of plates, one of zinc, the other of copper or of charcoal, placed in a trough nearly filled with dilute sulphuric acid, a narrow space being left between the members of each pair. These plates are coupled by a wire attached at the top. In the zinc plate positive electricity is developed, which passes through the fluid conductor to the copper one, while in the latter negative electricity is developed, which passes through the wire to the zinc plate. In this way there arises a continuous current of electricity, which lasts as long as there is any metal left for the acid to act upon. There are several adaptations of this method, known under the names of those making them, as the Daniell, the Grove, the Bunsen method, etc. The principle, however, remains the same, the improvements consisting chiefly in increasing the amount of electricity by increasing the number of plates, thus forming what are called galvanic batteries.

The third source, in order of time, was discovered by the very celebrated English physicist, Faraday. It originated in his observing that the galvanic current is capable, at the instant of its inception, and also of its interruption, of engendering an electric current in any conducting body lying close by. Accordingly, a hollow wooden cylinder, having copper wire coiled about it, and a small solid cylinder covered likewise with copper thrust into the space, being put in connection with a galvanic battery, at the moment of making this connection, a certain amount of electricity is induced in the wire on the inner cylinder;

the same resulting at the instant of interrupting the connection. The wire of the larger cylinder must be brought in proper contact with the battery at the moment of the union of the opposite forms of electricity, and again at the moment of the interruption of this union.

This induction may be heightened by placing an iron bar in a hollow made in the smaller cylinder, as the iron becomes magnetized, and, owing to the peculiar reciprocal relation existing, so reacts as to increase the induced current.

Of course, the means for producing electricity in this way were soon much improved, by so constructing the battery as to enable the operator to make and break the galvanic current with great rapidity. Such increased facility in producing the required electricity soon began to bring this therapeutic agent into use again.

We will now consider the effect of the electric current upon organized bodies. The most striking is that produced upon the frog, in the form of muscular contraction. This is shown in the most marked degree, by placing one pole of a galvanic battery, or of Farraday's apparatus, in contact with a motor nerve, the other touching the muscle to which the nerve belongs. At the instant of making the union a contortion of the muscle ensues; a feebler one at the interruption of the union. So long as the current continues unbroken, there is no movement of the muscle, unless the current is very strong indeed. In the latter case a mere convulsive action takes place. The more rapidly the galvanic current is alternately made and broken, the more energetic are the jerking movements; for which reason the apparatus of Faraday is peculiarly adapted to the production of muscular movements.

These movements can, to a certain extent, be suppressed by great exertion of the will of the subject; yet the point is soon reached, suppose the machine to be powerful, at which the strongest will must give way.

Besides the muscular movements there is an effect produced upon the skin, and this the more striking the drier the skin is. The galvanic current causes a burning sensation; the Faraday apparatus more a pickling. At the same time the skin becomes red. If one wishes to operate directly upon the skin, the conductor is put in contact with that part made dry. If, however, the deeper portions of the organism are to be acted upon, the end of the wire is

covered with a piece of damp sponge or leather, and the skin is previously well moistened, preferably with salt-water. In this way the painful irritation of the surface is wholly avoided. By this simple method the gifted French physician, Duchenne, of Boulogne, succeeded in locating the desired effect exactly where it would be most efficacious. Thanks to Duchenne's success in curing those afflicted with distressing maladies, also to the influence of Alexander von Humboldt, Hufeland, and others, and to the varied confirming researches of Remak, both the forms last mentioned, the galvanic and that of Faraday, have so far overcome the resistance arising from ignorance and fear, that they are now everwhere acknowledged to be indispensable and potent agents of the healing art. That of Faraday has proved best adapted for operating upon the nerves of sensation and of motions; the galvanic for the central nerve-system (the brain, spinal narrow, and the sympathetic nerve), and the organs of sense. This results from the fact that the former excites to greater activity, the latter soothing, thereby subduing the irritation consequent, more or less, upon a diseased condition of the parts mentioned.

Before proceeding to state the mode of applying electricity, we must briefly consider the effects of the galvanic current on the healthly organism, apart from that upon the skin and muscles, which has already been noticed as common to both forms, the galvanic and that of Faraday.

If by the application of the conductor to the head, the brain is made to receive a toleraly strong galvanic current, there presently ensues a feeling of dizziness; at the same time the head is observed to incline towards the positive pole. Frequently a feeling of drowsiness comes on, sometimes, indeed, complete slumber. The nerves of sense are strongly excited by the galvanic current. If one approached the eye with a conductor, various shapes and colors seem to start into being. The ear, likewise approached, seems, according to the strength of the current, to perceive sounds of various kinds—ringing, whistling, rustling, and the like. The organ of taste receives an impression of something metallic. The effects upon the other internal organs have not been so thoroughly investigated; yet there seems to be no doubt that they are all more or less influenced by this potent agent.

Looking upon electricity as a part of the healing art,

we see that disorders of the nervous system are those in which its curative power is most strikingly apparent. Indeed, there is no therapeutic means so efficacious in restoring disturbed nerves to normal action, though sometimes altogether withont effect, as in the case of paralysis of one side of the body from apoplexy. It may, however, be remarked that a skillful application.of electricity will often cause considerable motion in the affected parts, where every other means totally fails.

There are many forms of cramp in which this agent may be successfully applied; for example writer's-cramp, formerly reckoned incurable; also the cramps with which piano players are sometimes afflicted. These can be permanently removed by electricity.

An important part is played by what may be called electro-therapeutics in dealing with nerves of sensation, especially where disturbances of these nerves take the form of pains in the face, the hips, etc. Affections of this kind, even of long standing, are sometimes cured by a few applications. Unhappily there are cases that sorely try the patience of both the operator and the one operated upon. Organic diseases of the brain and of the spinal marrow are only exceptionally cured by electrrcity, although often very beneficial effects result by which the disease is retarded in its development. Nervous headaches of the severest kind are magically relieved; also St. Vitus' dance, and many forms of hysteria.

Rheumatism is successfully treated with electricity. The use of this curative means in rheumatism of the muscles dates back several generations. Recently, it has been discovered that rheumatism of the joints gives way to electricity. The violent pains which accompany this disease may be entirely removed; though the actual cure requires the use of other means.

Besides those mentioned, there is a long list of diseases which are cured by electricity, and many in which the conditions of cure are best laid by it.

One, and that perhaps the most important, thing remains to be mentioned, viz., the use of the galvanic current in cases of apparent death. Many instances are now on record of restoration from a condition in which, to all appear ance and where all ordinary tests failed, life was wholly extinct, by the use of the Faraday form of electricity; especially in cases of poisoning by noxious gases.

In instances of real death, the excitability of the muscles remains for two or three hours, when it suddenly ceases. So long as this excitability continues, some vitality must be present—*the subject is not dead.* Life can be pronounced extinct only when the current no longer produces any effect.

When we consider that the tests heretofore employed can never be implicitly relied upon, and when we take into our minds tne horrible thought that not only may life remain without the least appreciable outward sign, but that the subject may be so far conscious as to be cognizant of what is going on about him, a strong sense of gratitude must pervade us when we think that in electricity we have an unfailing test of the presence of any remaining vestige of vatality, however small.

In conclusion, we would add that this remedy is applicable only by an appropriate machine; hence, electrized pills and powders, etc., are impositions, devised by the shrewd quack for a quite other purpose than the mitigation or removal of human ills.

Gleanings.

INSTANTANEOUS CURE OF HYDROCELE.—Dr. Macario, of Nice, contributes to *L'Abeille Medicale*, some interesting cases treated by electro-puncture. In the first case, two needles were plunged into the tumor, one at the base and the other at the apex. On connecting the needles the pain was such that the patient refused to continue treatment. Nevertheless, the next day the liquid had disappeared, and had not returned at the end of nine years. In the next case absorption was even more rapid, a tumor the size of two fists, dating from fifteen months, having vanished in the evening after a single sitting of one minute. Dr. M. has also reported to the Institute several other cases treated, some by electro-puncture, others by simple induced currents, and it is more than fifteen years since he first recommended this method, which has been followed by several others with considerable success.

GENERAL GARIBALDI.—Direct news from Caprera enables us to announce that its illustrious occupant has made a

more than usually satisfactory recovery from his last attack of rheumatoid arthritis. The General is now entirely free from pain, and can prosecute his favorite studies without fatigue. True to his later proclivities, he dissuades the Italian Government from carrying out its projected fortification of Rome; and while pointing out that Italy's true defense is her fleet, does not fail to improve the occasion for driving home a sanitary truth. Disease is the enemy from which Italian cities in general, and Rome in particular, have to be fortified. Let, therefore, the Government, instead of surrounding the great centers of life with trenches and wide tracks of waste ground, which are too often fever-preserves, expend its energy and treasure in making them healthful, attractive, and exhilarating. Let it prevent inundation from the Po or the Tiber, replace the squalid dwellings of the poor by appropriate houses, convert the narrow streets into spacious boulevards lined with the eucalyptus, and encourage the youth of the country in the disciplined use of arms, which, after all, is a nation's best safeguard. Long may the General live to inculcate such salutary lessons!—*The Lancet*, August 26th, 1877.

Book Notices.

A Guide to Therapeutics and Materia Medica. By Robert Farquharson, M. D., Edin. F. R. C. P., London. Enlarged and Adapted to the U. S. Pharmacopœia, by Frank Woodbury, M. D. 12mo. pp. 410. 1877. Philadelphia: Henry C. Lea. Cincinnati: R. Clarke & Co.

The present volume is an intelligent effort, as stated by the editor, to meet the growing desire for exact information concerning the action of remedial agents.

It is not a treatise on materia medica and therapeutics as are the works of Stille, Wood, etc., although mention is made oftentimes of the physical properties of the various medicines spoken of and other brief descriptions given of them. It is the physiological and therapeutic effects of remedies to which attention is most especially devoted. By a convenient arrangement the corresponding effects in

health and disease of each article are presented in parallel columns, not only rendering reference easier, but also impressing the facts more strongly upon the mind of the reader. This is done both in case of the local and constitutional action of each one. The work, of course, is not designed to supercede more voluminous ones. It teaches in a more systematic manner the relation between remedies and the indications that are to be met in disease, leaving nearly all other information in regard to them to be sought for from other sources.

The various articles, embracing pretty nearly all of the most common medicines, are classified alphabetically. We very cordially recommend it to our readers.

MODERN MEDICAL THERAPEUTICS: A Compendium of Recent Formulæ and Specific Therapeutical Directions, from the Practice of Eminent Contemporary Physicians, American and Foreign. By GEO. H. NAPHEYS, A. M., M. D., etc. Fifth edition, enlarged and revised, 8vo. pp. 598. Philadelphia: D. G. Brinton, 115 South Seventh st. Price $5.

The work of Dr. Napheys has proven to be very popular indeed, as is evidenced by its reaching a fifth edition. In less than a year the fourth edition was exhausted.

It is now separated into two *independent* books (not two volumes); one devoted to medical therapeutics, and the other to surgical therapeutics. The one we are now considering is the first. An opportunity is thus offered to treat each subject in a more complete manner, and to introduce a number of important topics not previously discussed.

The work is a truly scientific one, and not made up of a large number of prescriptions, "of what is good for this, or what is good for that." It presents the art of therapeutics, as stated by the editor, in all its aspects, and divested of that barren theorizing which has been its bane. While presenting combinations of remedies to meet the indications of each disease as it is separately considered, it explains the action of these and the relation which the various ingredients bear to each other. Besides, by means of the large number of prescriptions given in considering the treatment of the various diseases, the young physician is taught to combine scientifically and in an elegant man-

ner remedies together in making prescriptions himself. We will consider the other work at another time.

THE ACTION OF MEDICINES. By ISAAC OTT, A. M., M. D., formerly Demonstrator of Experimental Physiology, University of Pennsylvania. 8vo. pp. 163. Philadelphia: Lindsay & Blakiston. Cincinnati: R. Clarke & Co. 1878.

The work contains four chapters: Chapter 1, How to Study the Physiological Action of Medicines; Chapter 2, Action on Nervous System; Chapter 3, Action on Circulatory Apparatus; Chapter 4, Action of Medicines.

This is precisely the work needed by the student engaged in experimental research of the action of drugs upon the lower animals. It contains numerous plates of the apparatus required in experimenting, and full directions of every step in the various processes.

We cordially commend the book to the many young medical men who are sedulously striving to extend the field of knowledge by researches of their own. A text-book of the kind is much needed, and this one is well calculated to fill the want.

MATERIA MEDICA FOR THE USE OF STUDENTS. By JOHN B. BIDDLE, M. D., Prof. of Materia Medica and General Therapeutics in Jefferson Medical College. Eighth edition, revised and enlarged, with numerous Illustrations. 8vo. pp. 462. Philadelphia: Lindsay & Blakiston. Cincinnati: R. Clarke & Co. 1878.

The work of Prof. Biddle has been a very popular one indeed. One reason, undoubtedly, is that it is well adapted to the wants of students. Although embraced in a single volume, and that not a very large one, it is sufficiently full in its descriptions and discussions for all practical purposes. Students in attendance upon lectures, especially, find it a most convenient reference book.

The present edition has been so revised as to bring it abreast of pharmacological science as at present. It has been the aim of the author, as in previous editions, to present a succinct account of the articles in general use in the United States, and discussed in the courses of lectures delivered upon the subject.

We have no doubt but that the many excellencies of

the work will cause it to continue to maintain its great popularity.

WALSH'S PHYSICIANS' HANDY LEDGER, Published by RALPH WALSH, M. D., Washington, D. C.

This is a work designed for physicians to keep their accounts in. It is so arranged for charges and credits that the physician can tell at a glance a patron's account. On each page there is a space for charges of visits for every day in the year—each month occupying a line. At the end of a line is a space for the sum of the charges and for credits. The page facing is arranged for noting obstetrical, surgical, and miscellaneous attendance, for which charges greater than the fee for an ordinary visit are made. Certainly nothing can be more convenient in which to keep accounts than this book. With it it would be almost impossible to make a mistake, for a whole year's business, however great, is placed under the eye on the two pages with each patient. It is the companion to Walsh's Physician's Combined Call Book and Tablet, which should accompany it.

Editorial.

PECULIAR PHONATION AS WELL AS ARTICULATION ASSOCIATED WITH PARALYSIS.—Dr. Broadbent brought to the Clinical Society of London, brief notes of four cases in which these peculiarities had existed. Case 1 was that of a girl, aged 20, who, seven months after the birth of an illegitimate child, was seized, after an emotional shock, with pain in the head, vomiting and delirium; after which she was completely paralyzed on the left side, partially on the right, then speech was said to have been lost; it was probably rather unintelligible. As she recovered, the voice was altered and impaired, and the articulation was indistinct and almost monosyllabic. Case 2 was that of a woman, aged 27, who, during an attack of small-pox, five weeks after the birth of a child, had a fit, after which she could not move a limb or speak a word for some weeks. When she had so far recovered as to be able to walk and feed herself, her intonation was loud and unnatural and articulation imperfect, attended with effort, and monosyllabic. Case 3 was that of a schoolmaster, who, a year after

contracting syphilis, became suddenly hemiplegic on the left side. Twelve months later he gradually lost his speech, and for six months he could not speak at all, deglutition, moreover, being affected. He regained speech, and some power in the left limbs, but the voice was squeaky and unnatural, and articulation peculiar and attended with great effort. In case 4 there was cross paralysis of the left limbs and right face, attended with affection of the voice and articulation. The feature common to these cases and that of Dr. Walker was that, except in the last (which was reported as helping to identify the seat of the lesion and to locate it in the pons), there was for a time speechlessness, which might be taken for aphasia, whereas the subsequent history showed that the damage to the mechanism of speech had occurred at a quite different point.

Money Value of Lives.—Basing it upon the agricultural classes of Norfolk, Dr. Farr estimated that an infant at birth was worth twelve dollars and a half, in its prospective labor. Five years later his value as a productive agent was one hundred and thirty dollars; and five years later it was more than doubled. At the age of twenty-five he has attained the maximum value, six hundred and fifteen dollars a year. At fifty it is reduced down to three hundred and forty-five dollars, and so on down to seventy, when the value is only two dollars and a half a year. Should he live to eighty his value is one hundred and two dollars less than nothing.

The University of Pennsylvania, we are informed by the Philadelphia *Medical Times*, has 130 first course students entered for the three-year term. The success of the new plan equals the most hopeful expectations, the general paying class being quite as large as it was last year. A marked improvement in the character of the new class is also noted.

Greenleaf, C. R., Major and Surgeon.—Assigned to duty as Post-Surgeon at the post to be established at Helena, Mont. S. O. 136, Department of Dakota, October 8, 1877.

Dr. G. graduated in Cincinnati, and will be recollected as the son of a former prominent rector of St. Paul's Episcopal Church, of Fourth Street.

Cincinnati medical news